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PIERS 1998

Progress In Electromagnetics Research Symposium

ADVANCE PROGRAM

July 13-17, 1998
Nantes, France

Organised by
The Electromagnetics Academy
IRESTE, Université de Nantes
CESBIO, CNES-CNRS-Université Paul Sabatier, Toulouse
Institut Universitaire de Technologie, Université de Paris X

PIERS 1998

Progress In Electromagnetics Research Symposium

We wish to thank :

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Conseil Général du Département de Loire-Atlantique

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United States Air Force European Office of Aerospace Research and Development

United States Army Research Development and Standardization Group (U. K.)

IEEE and French chapter of IEEE-MTT-ED

URSI

for their contribution to the success of this symposium.

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Updated information will be posted on the World Wide Web at http://www.piers.org

Contents

GENERAL INFORMATION

European Electromagnetics Events

12 Days on Electromagnetics

Several events, from July 10 to July 22, 1998, will be organised in European Countries on Electromagnetics.

International Workshop on Finite Elements for Microwave Engineering : from Electromagnetics to Microwave Electronics Software - July 10, 11, Poitiers Futuroscope, France.

Contact :

FEM Poitiers 98,
IRCOM, University of Limoges,
123 rue Albert Thomas,
87060 Limoges Cedex, France,
Fax : 33.5.55.45.75.14,
e-mail : dir@ircom.unilim.fr, http://infig9.die.unifi.it/poitiers

PIERS (Progress In Electromagnetics Research Symposium) 1998, 13-17 July 1998, Nantes, France.

Contact :

Dr T. Le Toan,
CESBIO,
18 avenue E. Belin, BP 2801,
31055 Toulouse Cedex, France
Fax : 33.5.61.55.85.00
http://www.ireste.fr/piers98

The 4th International Workshop on Radar Polarimetry (J. I. P. R. 4) included in PIERS Symposium

Contact :

Pr J. Saillard and Dr E. Pottier,
IRESTE - University of Nantes,
Rue Christian Pauc, La Chantrerie
44306 Nantes Cedex 3, france
Fax : 33.2.40.68.32.33
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Workshop on Complex Media and Measurement Techniques : Organised by the Electromagnetics Academy with the support of the European Commission JRC, DG XII, included in Topic 6 and Topic 11-3 of PIERS 1998

Contacts :

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PIERS Workshop on Advances in Radar Methods - 20-22 July 1998, Baveno, Italy.

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TECHNICAL PROGRAM SUMMARY

MONDAY, JULY 13, AM

WELCOME AND OPENING CEREMONY

MONDAY, JULY 13, PM

Session A01	Rough Surface and Related Problems
Session B01	Mathematical Methods for Inverse Scattering Problems
Session C01	Time Domain Methods I
Session D01	Time Domain Methods II
Session E01	Neural Network Techniques in Electromagnetics
Session F01	Microstrip and Resonator Antennas
Session G01	Microwave Phase Shifters, Circulators and Attenuators
Session G02	Millimeter Wave Device and Systems
Session H01	Composite Materials I
Session I01	Basic Polarimetry Theory and Applications
Session J01	Remote Sensing in European Union Projects
Session K01	Remote Sensing of Atmosphere
Session L12	Sensors : Radar and Radiometer I
Session L01	Antenna Arrays in Mobile Communications
Session M01	Material Measurements I

TUESDAY, JULY 14, AM

Session A02	RCS Models of Large and Complex Structures and Validation
Session B02	Tasks and Trends in Electromagnetic/ Elastic/Wavefield Inversion
Session C02	New and Efficient Methods for Computational Electromagnetics
Session D02	Computational Workshop
Session N01	Antenna Arrays in Mobile Communications Workshop
Session E02	Wavelets in Electromagnetics
Session F02	Microstrip Antennas and Planar Antennas
Session G03	Solitons and Non-Linear Optical Fiber Transmission
Session G04	Microwave Components I
Session H02	Composite Materials Modeling I
Session I02	Basic Polarimetry Concepts and Applications
Session J02	Microwave Scattering from Rough Surfaces
Session K02	Oblique Incidence Ionospheric Sounding Theory and Observations
Session L02	Biological Effects I
Session M02	Near Field 1 : From Microwaves to Optics

TUESDAY, JULY 14, PM

Session A03	Scattering and Diffraction of Electromagnetic Waves
Session B03	Electromagnetic Inverse Scattering Problems
Session C03	Advanced Techniques for Absorbing Boundaries in Computational Electromagnetics
Session D03	Novels Mathematicals Methods in Electromagnetics
Session E03	Genetic Algorithm and Optimization
Session F03	Aperture Antennas
Session G05	Passive and Active Optical Waveguides
Session G06	Electrodynamics of High Tc Superconductors
Session H03	Composite Materials Modeling II
Session I03	POL-SAR Image Processing
Session J03	Microwave Remote Sensing of Snow and Ice
Session K03	Remote Sensing of Natural Media
Session L03	Biological Effects II
Session L04	Wireless Sensor and Communnications Techniques I
Session M03	Near Field 2 : Near Field Optics

WEDNESDAY, JULY 15, AM

Session A04	Monte Carlo Methods for Propagation and Scattering Natural Media
Session A05	Surface Scattering Theory
Session B04	Non Linear Inversion : Algorithms and Applications
Session C04	Selected topics in Computational Electromagnetics
Session D04	Numerical Thechniques
Session E04	Coplanar Techniques
Session E05	Developments in the Area of the Calculations of Guided Waves and Propagation
Session E06	Packaging
Session F04	Array Antennas
Session G07	Microwave Components II
Session G08	Photonic Band Structures I
Session H04	Recent Advances on Complex Materials and Related Applications
Session I04	Ultrawideband (VHF-UHF) Polarimetry
Session J08	Forest Observations by Radars : The Eufora Project
Session K04	SAR Interferometry : Signal Processing and Phase Unwrapping
Session L05	Local Area Network
Session M04	Near Field 3 : Field Measurements via the Modulated Scattering Technique (MST)

WEDNESDAY, JULY 15, PM

Session A06	Asymptotic High Frequency Techniques
Session A07	Rough Surface Scattering Methods and Applications
Session B05	Microwave Imaging and Dielectric Reconstruction Techniques
Session C05	Parallel computation
Session D05	Asymptotic Methods
Session E07	Global Modeling of Millimeter-Wave Circuits I
Session E08	Global Modeling of Millimeter-Wave Circuits II
Session F05	Active and Phased Array Antennas
Session G08	Photonic Band Structures II
Session G09	Superconducting Devices : From Gigahertz to Terahertz Technologies
Session H05	Composite Materials II
Session I05	Polarimetry in Multisensor Signature Fusion
Session J05	Dielectric Characteristics of Geophysical Media
Session J06	Microwave Remote Sensing of Crops
Session K05	Interferometry
Session L06	Wireless Sensor and Communications Techniques II
Session M05	Near Field 4 : RF/Microwave NF Techniques

THURSDAY, JULY 16, AM

Session A08	Coherent Effects in Random Media I
Session B06	Shape Reconstruction and Object Identification
Session C06	Hybrid Methods in Electromagnetism
Session D06	Iterative Methods in Scattering
Session E09	Domain decomposition, Segmentation and Hybridization Methods for Modeling Microwave Structures
Session F08	Conformal and Smart Micrsostrip Antennas
Session G10	Optical Interconnections in Electronic Systems : Design and Realization I
Session G11	Photonic Crystals : from Microwave to Optics I
Session H06	Chiral Media
Session I08	Polarimetric Signal Processing
Session J07	Polarimetry, Interferometry and their Combination for Vegetation Studies
Session K06	Microwave Propagation in Tropical Regions
Session L07	Indoor Propagation
Session M06	Medical Applications

THURSDAY, JULY 16, PM

Session A08	Coherent Effects in Random Media II
Session B07	Detection and/or Imaging of Buried Objects
Session C07	Advances Techniques in TLM Field Computation
Session D07	Hydrid Methods
Session E10	Discontinuities
Session F07	Conformal and Smart Skin Antennas
Session G11	Photonic Crystals : from Microwave to Optics II
Session G12	Superconducting Devices : Modeling and Desing
Session H07	Scattering by Complex Structures - Novel Application I
Session H08	Scatering by Complex Structures - Novel Application II
Session I06	Polarimetric Diffraction and Scattering and Applications
Session I07	Plenary Session and Panel discussion
Session J04	Scattering from Natural Bare Soils
Session J09	Radar Remote Sensing of Forests
Session K07	Propagation Effects and Models
Session L08	Frontiers of Electromagnetics Research
Session M07	Material Measurements II

FRIDAY, JULY 17, AM

Session A09	Scattering I
Session A10	Structure Complex
Session B08	Inverse Scattering Problems : Biomedical Applications
Session C08	Frequency Domain Methods
Session D08	Computational Electromagnetics in EMC Applications
Session E11	Transmissions Lines
Session F06	Conformal Antennas and Arrays
Session G13	Microwave Components III
Session G14	Optical Interconnections in Electronic Systems : Design and Realization II
Session H09	Modeling Design of Millimeter Wave Antennas
Session H10	Dipole and Wire Antennas
Session I09	Joint EC-CIS Polarimetric Radar projects
Session J10	Classification of Synthetic Aperture Radar Images
Session K08	Parabolic Equation Techniques for Wave Propagation
Session L10	CEM
Session L11	Educational Electromagnetics
Session M08	Dielectric Measurements on Low Loss Crystals

FRIDAY, JULLY 17, PM

Session A11	Diffraction and Electromagnetics Waves
Session A12	Electromagnetic Formulation
Session B09	Scattering II
Session C09	The Methods of Lines for Computational Electromagnetics
Session D09	Advanced Topics in FDTD
Session E12	Signal Processing
Session F09	Antennas for Mobile Communication Systems
Session G15	Microwave Components IV
Session H11	Antennas and Signal Processing
Session I10	Recent Russian CIS Contributions to Radar Polarimetry
Session J11	VHF Band SAR
Session K09	Indoor and Outdoor Propagation
Session K10	Sensors : Radar and Radiometer II
Session L09	Electromagnetic Compatibility and Interference Problems
Session M09	Short Range Microwave Applications

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PIERS 1998

Progress in Electromagnetics Research Symposium
July 13-17, 1998
Nantes, France

Organised by
The Electromagnetics Academy, French Chapter
IRESTE, University of Nantes
CESBIO Toulouse
Institute of Technology, University of Paris X, France

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SYMPOSIUM SITE AND OFFICE LOCATION

The PIERS' 1998 will be held July 13-17 at the Cité des Congrès, Nantes - France. This congress center is a modern and attractive building, situated in the city center of Nantes, near all facilities and entertainments.

During the symposium, the PIERS office will be at the Cité des Congrès :
Phone : 33 2 51 88 20 00 ; Fax : 33 2 51 88 20 20

July in Nantes is usually mild and sunny, with temperatures ranging from 20°C to 25°C. However, a light rainçoat is recommended.

=> Visas

Foreign delegates (except residents of EC countries and Switzerland) should enquire at least 3 months prior to the Symposium to their nearest Embassy or Consulate whether a visa is required.

=> Lunches

Advance registration for lunches are strongly recommended. The lunch organisation requires advance notice of the number of attendees.

A limited number of tickets will be available on the conference site at the cost of 120 FRF each.

=> Registration desk

The conference registration desk, located in the Cité des Congrès, will open on Sunday, 12 July, from 5:00 p.m. to 8:00 p.m. It will reopen on Monday morning beginning at 8:00 a.m. The registration desk will be staffed through-out the conference to provide information and assistance to participants and their guests.

REGISTRATION AND FEES

Advance registration for the Progress in Electromagnetic Research Symposium and the related social events is recommended. To register, please complete the Symposium registration form and return it by 15 May, 1998, to take advantage of the lower early registration fees.

Fees in French Francs must accompany your registration and payment can be made by cheque, Eurocheque, bank transfer or credit card (VISA, Mastercard or EUROCARD only).

Mail your registration form and fees to :

Cité des Congrès de Nantes
PIERS 1998 Registration
5 Rue de Valmy
BP 24102
44041 NANTES Cedex 01

If paying by credit card, registration may be made by telefax to 33 (2) 51 88 22 91. Valid Mastercard, VISA ou EUROCARD credit card numbers with name as it appears on the card and expiration date noted must be included with all faxed registrations.

If paying by bank transfer, please add 120 FRF to the registration fees, in order to cover the international banking fees.

IF YOU ARE A PRE-REGISTERED, PRESENTING AUTHOR

you may still wish to register for some of the social events. Please indicate on the registration form that you are pre-registered by checking the appropriate box and then indicate which additional events you would like to attend. Your payment must accompany the registration form.

REGISTRATION FEES

The registration fee for all participants, including chair persons and authors is :

	Before 15 May 1998	*After 15 May 1998*
Conference Registration	*1800,00 FRF*	*2200,00 FRF*

Participant registration fees include symposium materials, attendance to all technical sessions, welcome cocktail, refreshment breaks, and one copy of the abstracts book.

CANCELLATION POLICY

Each cancellation received by mail or telefax before 15 June 1998 will allow a refund of :

- The registration fees, minus 500 FRF per person for administrative costs.
- The hotel deposit, minus 100 FRF per room for administrative costs.

After 15 June 1998, no refund can be made.

PIERS ON-LINE

Updated information will be posted on the World Wide Web at «http://www.piers.org».

SYMPOSIUM ABSTRACTS BOOK

Additional copies of the PIERS 1998 abstracts book may be purchased from conference staff in the PIERS Office at the Cité des Congrès during the symposium.

PROJECTION FACILITIES

Projection equipement available in each meeting room will be standard 35 mm slide (carousel type) and overhead projectors.

SOCIAL EVENTS

For PIERS 1998 a variety of optional activities have been planned for your enjoyment. The starting times given for events with transportation provided are bus departure times. All full-day excursions include lunch.

If you preregister, tickets will be included in your registration package. Preregistration for you and your accompanying person is strongly encouraged for all social events. Some activities have limited space and some require advance notice of the number of attendees. Please preregister for social events on the registration form.

The Organisers reserve the right to cancel any tour or event if minimum enrollment is not met.

GALA DINNER — Wednesday, 15 July

from 7.30 pm to midnight ..... **Price : 200,00 FRF**

Le Château de la Poterie on the Erdre's Riverside

The time of a short cruise between the Cité des Congrès and le Chateau de la Poterie, you will enjoy the discovery of the Erdre river...

The most beautiful French river according to King François the 1st, is a genuine treasure of Mother nature. Its banks in bloom, mingling with the mansions and castles offer an exceptional show.

Then, discover le Chateau de la Poterie where the gala dinner will take place... Located on the Erdre's riverside, this nice castle has been built near the city of Nantes on the 18th century by Ceineray's Architect.

In its vast, spacious park, in the shade of Century-old-trees, le Chateau de la Poterie welcomes you with elegant reception lounges. It's authentic selting, the charm of the surroundings ant the calmness of its stones, steeped in history and comfort of today, will assuredly seduce you.

Preregistration for you and your accompanying person is strongly encouraged.

MONT SAINT MICHEL TOUR — Thursday, 16 July

one day tour from 9 am to 7 pm, with de luxe coach,
a registered guide, entrance fees, and lunch ..... **Price : 370,00 FRF**

Thanks to its superb setting and wonderful architecture, Mont Saint Michel, the "Wonder of the Western World", is one of the most popular tourist venues in France. The rocky island has a circumference of just over half-a-mile and rises to a height of 260 ft. It is connected to the mainland by a dyke built in 1879 that is never covered by the sea. In the 20th century, Mont Saint Michel has been upholding its age-old traditions of a warm welcome and accommodation for travellers. During the highest tides, twice a month, the ebb and flow are a splendid sight, and the bay boasts the strongest tides in Europe.

In the 11th century, the romanesque Abbey was built over a succession of crypts on the very top of the island and the early monastery buildings were erected along the North face of the rock. 2 centuries later, King Philip Augustus of France made a donation to the abbey after conquering Normandy. It was his gift that enabled the "Marvel" to be built, two three-storey buildings topped by the cloisters and refectory. Later, the abbey was protected by a defensive system. The major period of construction of the abbey is from 11th to 16th centuries.

WALKING TOUR OF NANTES — Friday, 17 July

half-day tour (9 am - 12 am) ..... **Price : 70,00 FRF**

Visit the Cathedral Saint Pierre, a flamboyant and impressive masterpiece of gothic architecture, that shelters the tombs of the last Duke of Britanny.

Then, visit the castle of the Duke of Brittany, one of the last medieval buildings still standing on the banks of the river Loire.

You will then tour the town following its chronological growth throughout the ages and discover great monuments such as the Passage Pommeraye, Graslin Theatre, Feydeau Island...

GUIDED TOUR OF GRAVES AND VINEYARD — Friday, 17 July

half-day tour (2 pm - 6 pm) ..... **Price : 190,00 FRF**

Take the tourist route through the vineyard : Vertou, Saint Fiacre, La Haye Fouassière, Le Pallet, stop at the "Chaussée des Moines". Then discover Clisson and its impressive medieval castle on the banks of the Sèvres and the Moine. Stroll in the old streets : the covered market, the viaduc... You will visit afterwards "La Garenne Lemot", an italian-like villa built like a classical landscape painting. It is the result of numerous architectural inspirations : Italian with the gardener house, neo-classical with the villa Lemot, antique with the temples, columns and statues which give the park its so particular charm.

The tour will end with the tasting of Muscadet wine during the visit of the castle of Goulaine and the discovery of its tropical butterflies farm.

CASTLES OF THE LOIRE VALLEY TOUR — Saturday, 18 July

one day tour from 9 am to 8 pm, with de luxe coach, a registered guide, entrance fees, and lunch. ..... **Price : 480,00 FRF**

SERRANT

Inside all arts are to be seen : tapestries, paintings, rare furniture and specially a magnificient bookcase.

BRISSAC

The highest of all the royal castles, Brissac is built on 7 levels. Here all is amazing : the ceiling painted with "gold leaf", the tapestries, the furnitures and even a theatre where the woody columns are lightened by centre lights in crystal of Venice.

Crossing through SAUMUR along the river Loire.

The Saumur castle stands up on a small hill. Its fortification was extended during the civil wars of the XVIIth century, as a "protestant fortress".

Lunch at the Prieuré Saint Lazare in the FONTEVRAUD Abbey.

USSÉ

Ussé was built in the 15th century on the edge of the Chinon forest, on the site of a fortress overlooking the river Indre. Its surprising architecture inspired Charles Perreault who wrote "Sleeping Beauty".

AZAY-LE-RIDEAU

This castle is a jewel, one of the first Renaissance castles. The financier, Gilles Berthelot, who worked for King François I, built his new residence on an island in the Indre river.

VILLANDRY

Built in 1536 between the Cher and the Loire, Villandry is one of the first major castles, illustrating French style architecture. In the early 20th century, a spanish scholar, Joachim Carvallo, dedicated his life to its restoration and recreated its magnificent Renaissance gardens including the decorative vegetable garden.

LANGEAIS

On the border between Anjou and Touraine, King Louis XI built the fortress of Langeais to protect Tours from an attack by the Duke of Brittany. This was where Charles VIII married Anne de Bretagne in 1491. In the late 19th century, its enthusiastic owner decorated the castle and furnished it with exceptional tapestries and works of art. From the terraced gardens, one can admire the roofs of the old town.

ACCOMMODATIONS

HOTEL ACCOMMODATIONS

Reservations will not be accepted by telephone.

Only a limited number of rooms are available and early reservations are strongly advised.

No reservation will be handled without the registration form duly completed and accompanied with the relevant payment (a one-night deposit + 50 FRF handling charge).

The balance of your reservation will have to be paid directly to the hotel upon check-out.

Information on local accommodations

- the first choice : category A

The chosen hotels in this category offer very modern convenience and a limited number of rooms (100 to 130 rooms max.) , restaurant, bar, private car park, room service and breakfast with a buffet. These hotels also offer spacious air conditioned and soundproffed guest rooms, with minibar, private bathroom, direct dial phone, colour TV with cable TV network.

- the second choice : category B

These hotels also offer a good comfort : bar, room-service (only for breakfast). The rooms are sometimes smaller but still comfortable with a private bathroom, direct dial phone and TV. Regarding the car park, please see the information below-mentioned**.

- the third choice : category C

The comfort of those hotels is very similar to the 3* traditional hotels. A few differences : there is no minibar and sometimes the bathroom is replaced by a shower room, also the breakfast can be only continental, but can be served in the room too. Direct dial phone and TV set are still included.

Regarding the parking, please see the information below-mentioned**.

- the fourth choice : category D

These hotels are simple and basic : the room offers a private shower room and toilets, and sometimes a bathroom and a TV. The continental breakfast is served in the dining-room. There is no restaurant and no bar.

Regarding the car park, please see the information below-mentioned**.

** Information about car park facilities : some of these hotels have a private car-park. Nevertheless, it is easy to park your car in the nearest public car park of the city with special rates as a guest of the hotel.

LOW-COST ACCOMMODATION

A few rooms in students or workers accommodation centers are available nearby the Cité des Congrès de Nantes.

For any further information, or reservation, from 15 June 1998, please contact :

Foyer Port Beaulieu - 9 Boulevard Vincent Gâche - 44200 NANTES
Tel. 33 (0) 2 40 12 24 00
Fax 33 (0) 2 51 82 00 05

TRANSPORTATION

* BY PLANE

The recommended airport is Nantes-Atlantique International Airport, with several daily flights Sunday to Friday of the main Airline Companies, departing from most European capitals and several other major foreign cities.

Airport information : 33 (0) 2 40 84 80 00 (AIR FRANCE is Official Carrier)

Please note that a TAN AIR coach shuttle runs every 30 minutes from Nantes Atlantique airport to downtown Nantes ("gare SNCF" stop near the Cité des Congrès - transit time 20 minutes). The timetable and the tickets are available at the Nantes Atlantique airport.

* BY TRAIN

Direct daily TGV's (High speed trains) depart regularly from Paris- Montparnasse Station (approximately 15 trains a day) and from Charles de Gaulle Airport Station (3 trains a day) to Nantes.

Total travel time from Montparnasse Station : 2 hours.
Total travel time from Charles de Gaulle Airport : 3 hours.
Reservation is mandatory for TGV

For information and reservation, please call : SNCF - 33 (0) 8 36 35 35 35

* BY CAR

From Paris, highway A6 (direction Lyon) to "Porte d'Orléans", then highway A10 towards Chartres, A11 from Chartres towards Le Mans, Angers and Nantes.
Travel time : 3 1/2 hours.

The Cité des Congrès de Nantes is located downtown Nantes, along the Loire River, across the railway station.

For car rental, please contact EUROPCAR INTERRENT directly :

EUROPCAR INTERRENT	
Nantes South Station	***Tel. 33 (0) 2 40 47 19 38***
	Fax 33 (0) 2 40 47 19 05
Nantes Atlantique Airport	***Tel. 33 (0) 2 40 84 81 05***
	Fax 33 (0) 2 40 84 82 69

TRAVEL INFORMATION

The Congress delegates may benefit from special discount on AIR FRANCE round-trip flights (up to 60% off depending on the schedules) and on round-trip rail journeys within France (SNCF - 20% off).

Air France has been designated Official Carrier. We suggest you contact your nearest Air France Office, for special rates for this event on presentation of your registration confirmation or entrance card. On the Air France domestic network, a special discount of up to 50 % is applicable for tickets purchased in France.

The discount coupons are mailed upon request by the Secretariat, together with the confirmation of your registration to the Symposium.

PIERS TECHNICAL PROGRAM

Monday, July 13 AM

WELCOME AND OPENING CEREMONY

Session A01
Monday, July 13 PM
Rough Surface Scattering And Related Problems

Organiser : A. A. Maradudin
Chairs : A. A. Maradudin, E.R. Mendez

A01:01 *Banded method of ordered multiple interaction for the scattering of EM waves from a rough surface*
P. Tran, Computational Science Branch, Research and Technology Group, Naval Air Warfare Center Weapons Division, China Lake, California, USA

A01:02 *Backscattering by multiscale surfaces at grazing angles of incidence*
R. Hernández-Walls, E. R. Méndez, Division de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico; A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA

A01:03 *Scattering from randomly rough metal surfaces : SERS electromagnetic mechanism*
J. A. Sánchez-Gil, J. V. Garcia-Ramos, Inst. de Estructura de la Materia, C.S.I.C., Madrid, Spain ; E. R. Méndez, Division de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico

A01:04 *Scattering of light from one-dimensional random surfaces formed from resonant scatterers*
T. A. Leskova, Inst. Spectroscopy, Russian Academy of Sci., Troitsk, Russia; A. A. Maradudin, A. V. Shchegrov, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA; Jun. Q. Lu, Dpt. of Physics, East Carolina U., Greenville, North Carolina, USA; E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico

A01:05 *Surface plasmon polaritons in light scattering from a random rough thin metal film on a substrate*
Jun Q. Lu, Dpt. of Physics, East Carolina U., Greenville, North Carolina, USA ; A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California, Irvine, California, USA

A01:06 *Second harmonic generation in the scattering of light from and its transmission through a random metal film in the Kretschmann ATR geometry*
I.V. Novikov, A. A. Maradudin, Dpt. of Physics and Astronomy, and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA; T. A. Leskova, Inst. Spectroscopy, Russian Academy of Sci., Troitsk, Russia; E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico

A01:07 *Speckle correlations in the second harmonic generation of light in reflection from a randomly rough metal surface*
M. Leyva-Lucero, E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico; T. A. Leskova, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA

A01:08 *Detection of a small defect on top of and underneath a rough surface*
Zu-Han Gu, Surface Optics Corporation, San Diego, California, USA ; M. Josse, CEA/CESTA, Le Barp, France

A01:09 *Computer simulation studies of speckle correlations in the light scattered from volume disordered dielectric media*
A. R. McGurn, Dpt. of Physics, Western Michigan U., Kalamazoo, Michigan, USA; A. A. Maradudin, Dpt. of Physics and Astronomy, and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA

A01:10 *Signatures of electromagnetic surface shape resonances in scattering of pulsed beams from surface defects*
A. V. Shchegrov, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA

A01:11 *Polarization measurements of the light scattered by isotropic dielectric randomly rough surfaces*
E.I.Chaikina, G. Martinez-Niconoff, E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico

A01:12 *Effect of the long-scale roughness on the light scattering from slightly rough dielectric layers*
V. Freilikher, Yu Kaganovskii, M. Rosenbluh, Jack and Pearl Resnick Inst. of Advanced Technology, Dpt. of Physics, Bar-Ilan U., Ramat-Gan, Israel

Session B01
Monday, July 13 PM
Mathematical Methods for inverse scattering problems
Organisers : Ch. Pichot, S. Caorsi
Chairs : A.K. Louis, P.C. Sabatier

B01:01 *Inverse scattering problems and the variational principles*
M.A Hooshyar, Programs in Mathematical Sci., U. of Texas at Dallas, Richardson, USA

B01:02 *Electromagnetic scattering: a simple method for the solution of the inverse problem*
M. Piana, INFM and Dpt di Fisica, U. di Genova, Genova, Italy

B01:03 *An approach to the problem of diffraction tomography using a t-operator equation*
K. Ishida, M. Tateiba, Dpt. of Computer Sci. and Communication Engineering, Kyushu U., Fukuoa, Japan

B01:04 *Reconstruction of a penetrable object with the aid of approximate inverse via singular value decomposition of the scattering operator*
H. Abdullah, Saalandes U., Lehrstuhl für Angewandte Mathematik, Saarbruecken, Germany

B01:05 *Optimized sources in inverse electromagnetic problem*
E. Cherkaeva, Dpt of Mathematics, U. of Utah, Salt Lake City, UT, USA ; A. C. Tripp, Dpt of Geophysics, U. of Utah, Salt Lake City, UT, USA

B01:06 *Inverse scattering and design of semiconductor heterostructures*
D. Bessis, G. A. Mezincescu, P.C. Sabatier, U. de Montpellier, France

B01:07 *Inverse scattering theory applications to photonic devices*
L. S. Tamil, Lakshman S. Tamil Broadband Communications Laboratory Erik Jonsson School of Engineering and Computer Sci., U. of Texas at Dallas, Richardson, TX, USA

B01:08 *Topological shape optimization of radio-electrical structures*
M. Masmoudi, MIP, U. Paul Sabatier, Toulouse, France ; M. Masmoudi, CERFACS, Toulouse, France

B01:09 *Global algorithm with local optimization (GALLOP) : a new approach to antenna array optimization*
Ch. Massat, N. Rossell, CERFACS, Toulouse, France ; Ch. Roques, ALCATEL Télécom, Dept. Antennes Spatiales, Toulouse, France ; Ch. Roques, Ch. Massat, MIP, UMR 9974, U. Paul Sabatier, Toulouse, France

B01:10 *Phase space and path integral methods applied to direct and inverse wave propagation modeling*
L. Fishman, Code 7181, Naval Research Laboratory, Stennis Space Center, MS, USA

B01:11 *A point-source method in inverse electromagnetic scattering*
R. Potthast, Inst. for Numerical and Applied Mathematics U. of Goettingen, Goettingen, Germany

B01:12 *R-functions method (RFM) for direct and inverse boundary value problems with complex domains in the diffraction theory*
V. F. Kravchenko, Inst. of Radio Engineering and Electronics of the Russian Academy of Sci., Moscow, Russia ; V.L. Rvachev, Inst. of Mashinere Problems, National Academy of Sci. of Ukraine, Kharkov, Ukraine

Session C01
Monday, July 13 PM
Time Domain Methods I

C01:01 *FDTD analysis of the mutual coupling between dielectric resonator antennas*
G. Biffi Gentili, M. Leaoncini, A. Pieraccini, C. Salvador, Dpt di Ingegneria Elettronica, U. di Firenze, Firenze, Italy

C01:02 *The Holland model for the thin wire simulation revisited*
F. Collino, Projet Ondes, Inria Roquencourt, Le Chesnais, France ; F. Collino, F. Millot, Cerfaces, Toulouse, France ; E.Duceau, S. Rodts, Dpt. Modélisation Numérique, Aerospatiale CCR, Suresnes, France,

C01:03 *Efficient analysis of strongly modulated periodic structures using the FD-TD method*
S. Leonhard, R. Zengerle, Dpt. of Theoretical Electrical Engineering and Optical Communications, U. of Kaiserslautern, Kaiserslautern

C01:04 *FD-DT analysis of electromagnetic radiation through slots in a PC metallic enclosure*
A-K. Hamid, M. Alsunaidi, King Fahd U. of Petroleum and Minerals, Dhahran, Saudi Arabia

C01:05 *Time frequency domain semi-inversion technique for one class of waveguide discontinuities*
Y. K. Sirenko, N. P.Yashina, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine

C01:06 *Reducing the number of field simulations for optimizing passive MMIC's*
U. Effing, I. Wolff, Dpt of Electromagnetic Theory and Engineering U. of Duisburg, Germany

C01:07 *Broadband model of anechoic chamber using Debye's equations for the FDTD*
B. Fourestié, S. Deshayes, J. Wiart, Z. Altman, C.N.E.T. D.M.R./R.M.C, Issy-les-moulineaux, France

C01:08 *Analysis of UWB scattering from dielectric objects buried in a lossy layered ground using FDTD and TLM*
J. LoVetri, Dpt of Electrical and Computer Engineerring, U. of Western Ontario, London, Ontario, Canada ; N. R. S. Simons, Directorate of Antennas and Integrate Electronics Communications Research Centre, Ottawa, Ontario, Canada ; B. J. A. M. Van Leersum, TNO Physics and Electronics Laboratory, The Hague, The Netherlands

C01:09 *Electromagnetic diffraction computing by FDTD and fictitious domain method*
P. Benjamin, S. Alestra, G. Alléon, N. Budak, E. Duceau, Dpt Modélisation Numérique, Aerospatiale CCR, Suresnes, France ; S. Garcés, Cerfaces, Toulouse, France ; F. Collino, P. Joly, Projet Ondes, Inria Roquencourt, Le Chesnay, France

C01:10 *Study of coplanar fed antennas using the FDTD method*
Salvador G. Garcia, Laurens C.J. Baggen, Dirk Manteuffel, Dirk Heberling, IMST, Germany

Session D01
Monday, July 13 PM
Time Domain Methods II

D01:11 *Finite-difference, time-domain analysis of non uniform transmission lines with nonlinear terminations*
H.Kabbaj, N. EL Ouazzani, D. Tahri, U. sidi Mohammed Ben Abdellah, Faculté des sciences et techniques Fès Saiss, Dpt de physique, Maroc; A. Benali, U. Mohammed Premier, LEAA, Dpt. de physique, Faculté de Sciences, Maroc

D01:12 *Optimum design of radar pulses for stealth targets (time-domain approach)*
Ahmad Cheldavi, IRAN Univ. of Science and Technology, Iran

D01:13 *Propagation characteristics in waveguides composed of dielectric disks*
Hiroshi Kubo, Masayoshi Tahara, Dpt. of Electrical and Electronics Eng., Yamaguchi U., Japan

D01:14 *CRETE :a finite element time domain code applied in industrial context*
Vincent Mathis, Microwave Dpt., DASSAULT Electronique, Saint Cloud, France

Session E01
Monday, July 13 PM
Neural Network Techniques in Electromagnetics
Organiser : K. S. Chen
Chairs : A.J. Chen, L.R. Cander

E01:01 *A limited survey of neural networks applications for remote sensing problems*
K.S. Chen, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan

E01:02 *Neural network for the automatic detection of buried utilities and landmines*
W. Al-Nuaimy, Y. Nakhkash, M. T. C. Fang, U. of Liverpool, Dpt. of Electrical Engineering, Liverpool, UK ; V. T. Nguyen, Shell Research Ltd., Shell Research and Technology Cnetre, Thornton, Chester, UK ; A. Eriksen, D. Leonard, Geo-Service Ltd, Whitney, Oxon, UK

E01:03 *Neural network approach to low angle radar tracking*
Y. C. Tzeng, Dpt of Electronics Engineering National Lien-Ho College of Technology and Commerce, Miao-Li, Taiwan ; K. S. Chen, Cneter for Space and Remote Sensing Research, National Central U., Miao-Li, Taiwan

E01:04 *Neural computation of mutual coupling coefficient between two rectangular microstrip Antennas with various substrate thicknesses*
K. Güney, S. Sagiroglu, M. Erler, Mühendislik Fakültesi, Erciyes U., Elektronik Mühendisligi Bölümü, Kayseri, Turkey

E01:05 *Neural network applications in ionospheric studies*
L. R. Cander, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon, UK

E01:06 *Automatic scaling of ionospheric parameters using fuzzy classification techniques*
L.-C. Tsai, Center for Space and Remote Sensing Research National Center U., Chung-Li, Taiwan ; L.-C. Tsai, Graduate Inst. og Space Sci., National Central U., Chunh-Li, Taiwan ; F. T. Berkey, Space Dynamics Laboratory, Utah State U., Logan, Utah, USA

E01:07 *A neural network approach to passive microwave remote sensing of the soil moisture*
Y.-A. Liou, Y. C. Tzeng, K. S. Chen, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan

E01:08 *Application of supervised and unsupervised neural networks to remote sensing image classification*
C.F. Chen, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan

E01:09 *A neural network based linear antena array processing for highly reduced side-lobes*
M. A. Aboul-Dahab, Dpt of Electronics, Arab Academy for Sci. and Technology, Abukeer, Alexandria, Egypt ; S. E. El-Khamy, Dpt of Electrical Engineering, Faculty of Engineering, Alexandria U., Alexandria, Egypt

E01:10 *Acquired data application on an image data compression technique*
E. M. Saad, A. A. Abdelwahab, Dpt of Comm. 1 Electronics, Faculty of Engineering, U. od Helwan, Cairo, Egypt ; M. A. Deyab, N. R. Aiad, Egyptian Radio & Television Union, Cairo, Egypt

E01:11 *Numerical modeling of interaction electromagnetic signals with oscillator neural networks*
N V. Spitsyna., V.G. Spitsyn, Siberian Phisical and Technical Inst. Tomsk State U., Tomsk, Russia

Session F01
Monday, July 13 PM
Microstrip and Resonator Antennas
Organiser : L Shafai
Chairs : L Shafai, Y. Antar

F01:01 *Investigation of mutual coupling between multi-segment dielectric resonator antennas*
A. Petosa, A. Irtipiboon, M. Cuhaci, Antenna Array Research Scientist, Communications Research Centre, Ottawa, Canada

F01:02 *Effect of finite ground plane on the directivity of the microstrip square ring antennas*
P. Moosavi, L. Shafai, Dpt. of Electrical and Computer Engineering, U. of Manitoba Winnipeg, Manitoba, Canada

F01:03 *Modified waveguide model for the rectangular dielectric resonator antenna*
D. Cheng, Y. M. M. Antar, B. Henry, Dpt of Electrical and Computer Engineering, Royal Military College of Canada, Kingston, Ontario, Canada ; G. Seguin, Canadian Space Agency, Canada

F01:04 *Gain improvement for annular slot array antenna*
S. Noghanian, L. Shafai, M. Clenet, Dpt. of Electrical and Computer Engineering, The U. of Manitoba, Winnipeg, CANADA

F01:05 *Wideband antenna suitable for MMIC applications*
Y. M. M. Antar, Dpt of Electrical and Computer Engineering Royal Military College of Canada, Kingston, Ontario, Canada ; H. F. Hammad, A. P. Freundorfer, Queen's U. , Kensington, Ontario, Canada

F01:06 *An electromagnetically coupled microstrip array with taylor distribution*
M. H. Zahedi, L. Shafai, Dpt. of Electrical and Computer Engineering, U. of Manitoba Winnipeg, Manitoba, Canada

F01:07 *Improvement of conical horn performance using metallic discs*
M. Clenet, L. Shafai, Dpt. of Electrical and Computer Engineering, U. of Manitoba, Winnipeg, Manitoba, Canada

F01:08 *Analysis of effects of microstrip stub on operating frequencies of microstrip-fed slot antennas*
D. Mirshekar-Syahkal, H. G. Akhavan, Dpt. of Electronic Systems Engineering, U. of Essex, Colchester, Essex, UK

F01:09 *Stacked C-patch antenna partially short-circuited*
L. Zaid, G. Kossiavas, J. Y. Dauvignac, A. Papiernik, Laboratoire d'Electronique, Antennes et Telecommunications, U. de Nice-Sophia Antipolis, Valbonne, France

F01:10 *Stratified surface finite element method for arbitrary multilayered-multielement printed Antennas*
Ch. Luquet, J. Y. Dauvignac, Laboratoire d'Electronique, Antennes et Télécommunications, U. de Nice-Sophia Antipolis / CNRS, Valbonne, Francce ; C. Dedeban, France Telecom/CNET, La Turbie, France

F01:11 *An Experimental study of rectangular microstrip antenna on dielectric substrates*
S. Rafath Ara, P. M. Hadalgi, P. V. Hunagund, S. F. Farida, Dpt of PG Studies and Research in Applied Electronics, Gulbarga U., Gulbarga, Karnataka, INDIA

Session G01
Monday, July 13 PM
Microwave Phase Shifters, Circulators and Attenuators

G01:01 *Microwave phase shifters based on ferroelectric films.*
A.B.Kozyrev, V. N. Osadchy, A. S. Pavlov, St. Petersburg Electrotechnical U., St.Petersburg, Russia ; G. A. Koepf, C. H. Mueller, T.V. Rivkin, Superconducting Core Technologies Inc., Golden, USA

G01:02 *Some aspects of cobalt substitution in Lithium Titanium ferrite for phase shifter application*
N. Kumar, P. Kishan, Solidstate Physics Laboratory, Delhi, India

G01:03 *Field theory analysis of microstrip circulator using contour integral method*
E. A. F. Abdallah, A. Sedek, Electronics Research Inst., National Research Centre Buildings, El-Tahrir Street, Cairo, Egypt ; M. El-Said, E. Hashish, Dpt of Electronics and Communications, Faculty of Engineering, Cairo U., Cairo, Egypt

G01:04 *Detailed matching characteristic of a punched ferrite EM absorber*
Y. Kotsuka, A. Maeda, Y. Komazawa, Dpt. of Telecommunications, Tokai U., Hiratsuka-shi, Japan

G01:05 *Regulation of attenuation with minimum phase shift*
O. V. Stoukatch, Tomsk State U. of Control Systems and Radioelectronics (TUCSR), Tomsk, Russia

G01:06 *The new controlable attenuators*
O. V. Stoukatch, I.V. Stoukatchev, Tomsk State U. of Control Systems and Radioelectronics (TUCSR), Tomsk, Russia

Session G02
Monday, July 13 PM
Millimeter Wave Devices and Systems

Organiser : E. M. Biebl
Chairs : E. M. Biebl, G. E. Ponchak

G02:01 *New developments in microwave photonics*
A.J. Seeds, Dpt of Electronic and Electrical Engineering, U. College London, London, England

G02;02 *Wideband microwave optic link for remote sensing*
A. Stöhr, R. Heinzelmann, M. Alles, D. Jäger, Gerhard-Mercator-U. Duisburg, FG Optoelektronik, Duisburg, Germany

G02:03 *Finite ground coplanar (FGC) waveguide: a better transmission line*
G. E. Ponchak, NASA Lewis Research Center, Cleveland, OH ; E. Tentzeris, L. P. B. Katehi, U. of Michigan, MI

G02:04 *Low cost direction sensitive doppler radar sensors*
R. H. Rasshofer, E. M. Biebl, Lehrstuhl für Hochfrequenztechnik, Technische U. München, München, Germany

G02:05 *Doppler simulator for a dual frequency near-range CW-radar*
U. Siart, J. Detlefsen, Lehrstuhl für Hochfrequenztechnik–HFS, Technische U. München, München, Germany

G02:06 *Self-oscillating mixers in automotive radars*
J.-F. Luy, Daimler-Benz Forschung und Technologie, Ulm, Germany

Session H01
Monday, July 13 PM
Composite Materials I
Workshop on Complex Media and Measurement Techniques

Organisers : D. Jeulin, V. Vigneras
Chairs : G.W. Milton, D. Jeulin

H01:01 *Characterization of the absorbent properties of an heterogeneous material containing carbon black particles as a function of the process*
C. Marchand, J. L. Greffe, Laboratoire des Sci. du Génie Chimique, UPR 6811, CNRS, ENSIC, INPL, Nancy, France

H01:02 *Prediction of the effective permittivity of carbon-black polymer composites from their morphology*
L. Savary, D. Jeulin, Centre de Morphologie Mathématique, ENSMP, Fontainebleau, France ; D. Jeulin, A. Thorel, Centre des Matériaux Pierre-Marie Fourt, ENSMP, Evry, France

H01:03 *Local scale approach of the complex permittivity on a carbon-black polymer composite*
L. Savary, D. Jeulin, Centre de Morphologie Mathématique, ENSMP, Fontainebleau, France ; B. Delcroix, D. Jeulin, A. Thorel, Centre des Matériaux Pierre-Marie Fourt, ENSMP, Evry, France

H01:04 *Exact solutions for the dispersion relation in a wide class of periodic media with complex moduli*
G. W. Milton, Dpt of Mathematics, U. of Utah, Utah, USA

H01:05 *Electromagnetic study of heterogeneous materials based on integral representation and homogeneization methods*
H. Roussel, W. Tabbara, U. de Paris VI, Division Ondes-L.S.S, Gif sur Yvette, France

H01:06 *Scaling theory for homogenization of the Maxwell equations*
A.P. Vinogradov, Sci. Center for Applied Problems in Electrodynamics, Russian Academy of Sci., Moscow, Russia

H01:07 *Modelling impedance spectra results on complex dielectrics with effective media and and other models*
D S McLachlan, Physics Dpt, U. of the Witwatersrand, South Africa ; T. O. Mason, Materials Sci. and Engineering Dpt, Northwestern U., Evanston, USA

H01:08 *Fast numerical schemes for computing the response of nonlinear composites with complex microstructures*
D. Eyre, G. W. Milton, Dpt of Mathematics, UT, USA

H01:09 *The Problem of Maxwell's boundary conditions in MIE's theory*
U. Kreibig, Physikalishes Inst. der RWTH Aachen, Germany

H01:10 *Effective field method in the problem of electromagnetic wave propagation through media with sets of isolated inclusions*
S. Kanaun, Inst. Tecnològico y de Estudios Superiores de Monterrey, Campus Estado de México, Edo. de México, Mexico; D. Jeulin, Centre de Morphologie Mathématique, ENSMP, Fontainebleau, France

H01:11 *Resonant absorptions in granular silver films near the percolation : experiment and simulation using an entropic model*
C. Andraud, J. Lafait, Laboratoire d'Optique des Solides de l'U. P. et M. Curie Unité associée au CNRS, Paris, France ; A. Beghdadi, Laboratoire des Propriétés Mécaniques et Thermodynamiques de Matériaux, U. Paris Nord, Villetaneuse, France

H01:12 *Combined models for the electromagnetic dependent scattering in dense heterogeneous media*
J.C. Auger, J. Lafait, Laboratoire d'Optique des Solides de l'U. P. et M. Curie Unité associée au CNRS, Paris, France

J. I. P. R. 4 - Session I01
Monday, July 13, PM 13:40-17:20
Basic Polarimetric Theory and Applications
Organiser : E. Krogager
Chairs : E. Krogager and Z.H. Czyz

I01:01 *Basic polarimetric radar theory and its application in radar target identification*
W.A. Holm, GIT-RAIL, Atlanta, GA/USA.

I01:09 *A new extended target decomposition scheme*
J. R. Huynen, P. Q. Research, Los Altos Hills, California, USA

I01:02 *The expression of reciprocity conditions in polarimetric algebras*
D.H.O. Bebbington, Dept. of Electronic Systems Engineering, University of Essex, Colchester, U.K.

I01:03 *Utilization of phase related information in radar polarimetry*
E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark

I01:04 *Theoretical results of the bistatic radar polarimetry on canonical targets*
A.L. Germond, E. Pottier, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France

I01:05 *The Poincare sphere of tangential phasors as two-folded Riemann surface in radar polarimetry*
(Overview) Z.H. Czyz, Telecommunications Research Institute, Warszawa, Poland.

I01:06 *On a phenomenological model choice of waves scattering by complex radar targets : comparison of simulation data and polarimetric measurements data*
V.I. Karnychev, Tomsk University of Control System and Radioelectronics, Tomsk, Russia.

I01:07 *Entropy and polarization of a stochastic radiation field*
C. Brosseau, Dept. de Physique, Université de Bretagne Occidentale, Brest, France.

I01:08 *New contemplations on polarimetric decomposition based on expected target orientation*
E. Hanle, FGAN-FFM/EL, Wachtberg, Germany

Session J01
Monday, July 13 PM
Remote Sensing in European Union Projects
Organiser : D. Solimini
Chairs : D. Solimini, G. Elgered

J01:01 *Snowtools research and development of remote sensing methods for snow hydrology*
T. Guneriussen, NORUT IT Ltd., Tromsø, Norway ; R. Solberg, Norwegian Computing Center, Norway ; S. Kolberg, SINTEF, Civil and Environmental Engineering, Norway ; M. Hallikainen, Helsinki U. of Technology, Finland ; D. Hiltbrunner, C. Matller, U. of Bern, Switzerland ; A. Harrison, U. of Bristol, UK

J01:02 *Early warning and long and long-term monitoring of volcanoes using sunthetic aperture radar interferometry*
P. Briole, Dpt de Sismologie, Inst. de Physique du Globe de Paris, Paris, France

J01:03 *EUFORA : European Forest Observations by Radars*
T. Le Toan, CESBIO, Toulouse, France ; J. Askne, CTH, Goteborg, Sweden ; A. Beaudouin, LCT, Montpellier, France ; M. Hallikainen, HUT, Helsinki, Finland ; S. Quegan, SCEOS, Sheffield, UK ; L. Ulander, FOA, Sweden ; U. Wegmuller, Gamma A.G., Muri, Switzerland

J01:04 *European radar-optical research assemblage*
D. Solimini, U. Tor Vergata, Roma, Italy ; T. Le Toan, CESBIO, Toulouse, France ; C. Schumullius, DLR, Oberpfaffenhofen, Germany ; M. Borgeaud ESA/ESTEC, Noordwijk, Netherlands ; U. Wegmüller , Gamma A. G., Muri, Switserland ; A. Guissard U. Catholique de Louvain, Belgique ; S. Quegan U. of Scheffield, U K ; J. F. Moreno U. of Valencia, Spain ; D.H. Hoekman, Wagenningen Agricultural U., Netherlands

J01:05 *The stardom concerted action*
B. Chapron, J.Tournadre, IFREMER, France; D. Hauser, CETP, France ; H. Johnsen, NORUT, Norway ; A.Guissard, P. Sobieski, UCL, Belgium ; J. M. Lefevre, J. Poitevin, H. Roquet, Meteo-France, France

J01:06 *Progress on advanced weather radar techniques in the darth project*
D H O Bebbington, Dpt of Electronic Systems Engineering, U. of Essex, UK

J01:07 *MEFFE - Meteorological forecasting for flood events*
F. Prodi, Dpt of Physics, U. of Ferrara and FISBAT - CNR, Clouds and Precipitation Group, Bologna, Italy

J01:08 *The Wavefront Project : ground based GPS meteorology in Europe*
G. Elgered, Onsala Space Observatory, Chalmers U. of Technology, Onsala, Sweden ; A. H. Dodson, Inst. of Engineering Surveying and Space Geodesy, U. of Nottingham, Nottingham, UK ; A. Rius, IEEC/UB-CSIC-UAB-UPC, Barcelona, Spain ; B. Buerki, Inst. fur Geodesie & Photogrammetrie, Zurich, Switzerland ; M. Rotacher, U. of Berne, Bern, Switzerland

Session K01
Monday, July 13 PM
Remote Sensing of Atmosphere
Organiser : N. Pierdicca
Chairs : N. Pierdicca, N. Kaempfer

K01:01 *Microwave radiometric retrieval of atmospheric temperature profiles by using temporal and spatial correlations*
P. Basili, S. Bonafoni, Inst. of Electronics, U. of Perugia, Perugia, Italy ; P. Ciotti, F. S. Marzano, Dpt. of Electrical Engineeering, U. of L'Aquila, L'Aquila, Italy ; G. d'Auria, N. Pierdicca, Dpt of Electronic Engineering, U. of Roma «La Sapienza», Roma, Italy

K01:02 *Numerical simulations and aircraft measurements of melting layer effects on microwave emission and scattering of stratiform precipitation*
P. Bauer, Deutsche Forschungsanstalt Luft und Raumfahrt (DLR), Koeln, Germany ; F. S. Marzano, Dpt. Electrical Engineering, U. dell'Aquila, L'Aquila, Italy

K01:03 *Cloud parameter retrieval from spaceborne microwave radiometry: a comparison of cloud signature simulations to SSM/I historical data over the Mediterranean area*
G. d'Auria, N. Pierdicca, Dpt. Electronic Engineering, U. "La Sapienza" of Rome, Roma, Italy ; P. Basili, Inst. of Electronic, U. of Perugia, Perugia, Italy ; P. Ciotti, F .S. Marzano, Dpt. of Electrical Engineering, U. of L'Aquila, L'Aquila, Italy ; R. P. Nossai, Servizio Agrmeterologico Regionale, Sassari, Italy

K01:04 *Neural Networks for the retrieval of atmospheric profiles: data feature extraction and dimensionality reduction*
F. Del Frate, G. Schiavon, U. Tor Vergata - DISP, Roma, Italy

K01:05 *A groundbased multi-sensor package for cloud characterization*
S. Crewell, U. Löhnert, H. Mebold, C. Simmer, Meteorological Inst., U. of Bonn, Bonn, Germany

K01:06 *Microwave and infrared measurements used to validate water vapor retrievals from sunphotometer data*
T. Ingold, C. Mätzler, Inst. of Applied Physics, U. of Bern, Bern, Switzerland ; P. Demoulin, Inst. d'Astrophysique, U. de Liege, Liege, Belgium

K01:07 *Water vapor isotope H_2O_{18} and ozone in the middle atmosphere derived from millimeter-wave radiometry of transition lines near 203 GHz*
A. Siegenthaler, R. Peter, N. Kämpfer, Inst. of Applied Physics, U. of Bern, Bern, Switzerland

K01:08 *Measurements of ClO, HCl and ozone in the Arctic vortex with an airborne submm radiometer*
A. Murk, R. Peter, N. Kämpfer, Inst. of Applied Physics, U. of Bern, Bern, Switzerland

K01:09 *How microwave measurements of ozone can complement balloon-borne radiosoundings*
Y. Calisesi, R. Peter, N. Kämpfer, Inst. of Applied Physics, U. of Bern, Bern, Switzerland

Session L12
Monday, July 13 PM
Sensors : Radar and Radiometer I

L12:10 *Radarclinometry*
S. Paquerault, H. Maître, Dpt. IMA, ENST, Paris, France

L12:01 *Naval special warfare PMMW data collection results*
B. Blume, Nichols Research Corporation, Panama City, FL ; J. Wood, F. Downs, Naval Coastal Systems Station, Panama City, FL

L12:02 *Passive millimeter wave imaging device for naval special warfare*
F. Downs, Coastal Systems Station Dahlgren Division, Naval Surface Warfare Center, Panama City, FL

L12:03 *3D Migration/Array processing using GPR data*
M. L. Moran, USA Cold Regions Research and Engineering Lab, Hanover, NH, USA

L12:04 *Periodically grooved conical dielectric feeder for millimeter wave system applications*
C. Das Gupta, Dpt of Electrical Engg, Indian Inst. of Technology, Kanpur ; A. Kumar, Dpt of Electronics Engg. Assam Engineering College, Gauhati, Assam

L12:05 *Point-matching technique for computation of magnetic field perturbation by finite lenght crack in high sensitivity ACFM technique*
D. Mirshekar-Syahkal, R. F. Mostafavi, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK

L12:06 *Recent advances in high sensitivity ac field measurement for electromagnetic non-destructive evaluation*
D. Mirshekar-Syahkal, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK

L12:07 *Accordinative study between the vertical electrical sounding and TEM methods for exploring groundwater along Cairo-Alexandria road (Egypt)*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt

L12:08 *The exploration of the groundwater aquifer by using TEM & VES methods in the southern part of the Nile Delta*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt

L12:09 *A Fast multilevel algorithm for radar imaging*
A. Boag, S. Shammas, Israel Aicraft Industries, Dpt. 4483, Ben-Gurion Airport, Israel

Session L01
Monday, July 13 PM
Antenna Arrays in Mobile Communications
Organiser : L. Godara
Chairs : L. Godara, J. Saillard

L01:01 *Phased array antennas for mobile communications*
S. Ohmori, Yokosuka Radio Communications Research Center, Communications Research Laboratory, Ministry of Posts and Telecommunications, Tokyo, Japan

L01:02 *Ambiguities in antenna array for mobile communications*
A. Flieller, P. Larzabal, L.E.Si.R. E.N.S Cachan, Cachan, France

L01:03 *Space-time diversity receivers for DS-CDMA systems*
J. F. Diouris, J. Saillard, Laboratoire Systèmes Electronique et Informatiques, IRESTE, Nantes, France ; J. Zeidler, Dpt. of Electrical and Computer Engineering, U. of California San Diego, California, USA

L01:04 *Adaptative unequally spaced phased arrays*
S. Nagraj, S. Park, T. K. Sarkar, Dpt. of Electrical and Computer Engineering, Syracuse U., Syracuse, New York

L01:05 *Circular antenna array fed by a seven-port 'RING-STAR' divider*
S. Fassetta, C. Roblin, A. Sibille, ENSTA (Ecole Nationale Supérieure des Techniques Avancées), Paris, France

L01:06 *An active adaptive array for HF communications*
L. Maoheng, Z. Shanli, L. Wenxing, Y. Changhan, L. Guodong, Harbin Engineering U., Dpt of Electronic Engineering, Harbin, China

Session M01
Monday, July 13 PM
Material Measurements I
Workshop on Complex Media and Measurement Techniques

M01:01 *Gas absorption measurement in the millimeter/submillimeter band by vector signal Detection*
N. Kakizaki, N. Takeya, T. Suzuki, N. Kumazawa, Y. Watanabe, Dpt. of Electrical & Electronics Engineering, Nippon Inst. of Technology, Saitama-ken, Japan

M01:02 *Measuring density of snow particles and its effect to radio wave attenuation*
Toru Shiina, Dpt of Electrical Engineering, Toyama National College of Technology, Toyama, Japan ;
K.-I. Muramoto, Dpt of Electrical and Computer Engineering, Faculty of Engineering, Kanazawa U., Knazawa, Japan

M01:03 *Measurement of material constants in near zone of electromagnetic horn*
V. A. Chistyaev, K. N. Rozanov, D. E. Ryabov, V. N. Semenenko, N. A. Simonov, Scientific Center for Applied Problems in Electrodynamics, Russian Academy of Sci., Moscow, Russia

M01:04 *A generalized plane wave model for radiating near field of horn antenna*
N. A. Simonov, K. N. Rozanov, Scientific Center for Applied Problems in Electrodynamics, Russian Academy of Sci., Moscow, Russia

M01:05 *Measurment of complex permittivity and permeability of dielectric materials using a coaxial transmission line with sensitivity and errore analysis*
A. Cheldavi, IRAN U. of Sci. and Technology, Tehran, Iran

M01:06 *Analysis of uncertainty associated with microwave measurements of lossy materials*
B. Yu. Kapilevich, Siberia State Academy of Telecommunications & Informatics Dpt. of Applied Electromagnetics & Antennas, Novosibirsk, Russia

M01:07 *The use of the dielectric properties of hardening concrete for monitoring the strength development*
M. A. Hilhorst, IMAG-DLO, Measurment Technology Dpt, Wageningen, The Nertherlands ; A. van Beek, Delft U. of Technology, Civil Engineering, Concrete Structures Stevin Laboratory, Delft, The Netherlands ; K. Van Breugel, Delft U. of Technology, Civil Engineering, Concrete Structures, Delft, The Netherlands

M01:08 *Characterization of radar absorbing material in the time-domain*
J. W. Odendaal, Dpt. of Electrical and Electronic Engineering, U. of Pretoria, Pretoria, South Africa

M01:09 *A comparison of measurement uncertainty in the measurement of complex permittivity and permeability at microwave frequencies using transmission line and quasi-optic systems*
I. J. Youngs, S. G. Appleton, N. Karamitsos, M. Bryanton, T. Stickland, Structural Materials Centre, DERA Farnborough, Hampshire, UK

M01:10 *New measurement technique for the surface resistance of superconducting thin film*
V. S. Dobromyslov, Moscow Power Engineering Inst., Moscow, Russia

Session A02
Tuesday, July 14 AM
RCS Models of Large and Complex Structures and Validation

Organiser : E. Kemptner
Chairs : E. Kemptner, U. Jakobus

A02:01 *RCS computation of electrically large scatterers with themethod of moments : parallelization and hybridization*
U. Jakobus, Inst. für Hochfrequenztechnik, Univ. of Stuttgart, Stuttgart, Germany

A02:02 *Validation of RCS signature simulations of ground targets at millimeter wave frequencies*
G. Biegel, H. Essen, D. Nüssler, FGAN-Forschungsinst. für Hochfrequenzphysik, Wachtberg-Werthhoven, Germany

A02:03 *Radar cross section computation using rapport and the method of equivalent currents, results and validation*
L.J. v. Ewijk, Radar Group, TNO Physics and Electronics Laboratory, The Hague, The Netherlands

A02:04 *Multiple reflections in GRECO RCS prediction code*
J. M. Rius, M. Vall-llossera, A. Cardama,Dpt. Teoria del Senyal i Comunicacions, Univ. Politècnica de Catalunya, Barcelona, Spain

A02:06 *Validation of monostatic and bistatic RCS-calculations of a stealth configuration by experiments*
E. Kemptner, D. Klement, German Aerospace Center DLR, Inst. of Radio Frequency Technology, Wessling, Germany

A02:07 *Asymptotic method in a multi domain and multi method approach for large targets*
V. Bazin, B. Fromentin, A. Barka, G. Bobillot, Office National d'Etudes et de Recherches Aérospatiales ONERA, Châtillon, France

A02:08 *Some applications of the DECLIC time domain code for SER prediction*
L. Virette, Matra Bae Dynamics, DTM/DTV/SSN, Vélizy Villacoublay, France

A02:09 *Validation of 2-D finite element predictions for multi-coated bodies*
C. J. Smartt, N.A. Verhoeven, J. A Ogilvy, D.A. Todd, N. Wignall, Sowerby Research Centre, British Aerospace Ltd, Filton, Bristol, UK

Session B02
Tuesday, July 14 AM
Tasks and Trends in Electromagnetic / Elastic / Wavefield Inversion

Organiser : D. Lesselier
Chairs : D. Lesselier, J. Bowler

B02:01 *Resolution and super-resolution in far- and near-field electromagnetic imaging*
Ch. de Mol, Dpt. of Mathematics, U. Libre de Bruxelles, Bruxelles, Belgium

B02:02 *Decomposition of the time reversal operator as a tool for electromagnetic sensing*
M. Saillard, G. Micolau, Laboratoire d'Optique Electromagnétique, Faculté de St. Jérôme, Marseille, France

B02:03 *On the retrieval of simplified objects in wavefield inversion*
R.E. Kleinman, Center for the Mathematics of Waves, U. of Delaware, Newark, USA ; D. Lesselier,Laboratoire des Signaux et Systèmes, CNRS/SUPELEC, Gif-sur-Yvette, France ; A. Wirgin, Laboratoire de Mécanique et d'Acoustique, Marseille, France

B02:04 *Subsurface imaging algorithms in archeology*
R. Pierri, G. Leone, Dpt di Ingeniera dell'Informazione, Seconda U. di Napoli, Naples, Italy ; T. Isernia, U. di Napoli "Federico II", Naples, Italy

B02:05 *Shape and profile reconstruction of two-dimensional dielectric objects*
A. Tijhuis, A. Litman, Faculty of Electrical Engineering, Eindhoven U. of Technology, Eindhoven, The Netherlands ; K. Belkebir, M. Saillard, P. Vincent, Laboratoire d'Optique Electromagnétique, Faculté de St. Jérôme, Marseille, France

B02:06 *The far-field expansion theorem in Biot's thermoelasticity*
F. Cakoni, Dpt of Mathematics, U. of Tirana, Albania ; G. Dassios, Division of Applied Mathematics, Chemical Eng. Dpt., U. of Patras, Greece ; V. Kostopoulos, Applied Mechanics Laboratory, Dpt. of Mechanical and Aeronautical Eng., U. of Patras, Patras, Greece,

B02:07 *Thin-skin eddy-current inversion for the determination of cracks shapes*
J.R. Bowler, Dpt. of Physics, U. of Surrey, Guildford, Surrey, U.K.

B02:08 *Experimental verification of super-resolution in nonlinear inverse scattering*
F.-C. Chen, W. C. Chew, Electromagnetics Laboratory, Center for Computational Electromagnetics, Dpt. of Electrical and Computer Engineering, U. of Illinois, Urbana, USA

B02:09 *Inverse scattering for dielectric objects using the nonmeasurable equivalent current density inside the scatterers*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; G. L. Gragnani, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genoa, Italy

Session C02
Tuesday, July 14 AM
New and Efficient Methods for Computational Electromagnetics
Organiser : J. M. Rius
Chairs : J. M. Rius, J.R. Mosig

C02:01 *TM' scattering from conducting structures utilizing finite elements in the time domain*
T. K. Sarkar, T. Roy, Syracuse U. ; M. Salazar-Palma, L. Emillio-Castillo, Polytechnique U. of Madrid, Spain ; A. R. Djordjevic, U. Belgrade

C02:02 *Usage of Hilbert matrices in the reduced expansion and field testing (REFT) method for matrix thinning*
B.Z. Steinberg, R. Kastner, E. Gershon, Faculty of Engineering, Tel-Aviv U.,Tel-Aviv, Israel

C02:03 *Efficient techniques for the electromagnetic analysis of passive microwave components using the admittance matrix representation*
V.E. Boria, A. Valero, M. Ferrando, Dpt. de Communicaciones, U. Politechnica de Valencia, Valencia, Spain ; M. Guiglielmi, European Space Research and Technologie Centre, Noordwijk, The Netherlands

C02:04 *Hybrid method based on a generalized admittance matrix representation*
A. Valero, V. Boria, M. Ferrando, Dpt. de Communicaciones, U. Politechnica de Valencia, Valencia, Spain

C02:05 *Impact of a fast wavelet transform approach on the effective design of planar antennas*
G. Gheri, J. R. Mosig, Laboratory of Electromagnetics and Acoustics, Ecole Polytechnique de Lausanne, Lausanne CH

C02:06 *The integral equation MEI for three-dimensional scatterers*
J. M. Rius, E. Ubeda, J. Parron, A. Cardama, Dpt. teoria del Senyal i Communications, U. Politechnica de Catalunya, Barcelona, Spain

Session D02
Tuesday, July 14 AM
Computational Workshop
Organiser : A. Taflove

Session E02
Tuesday, July 14 AM
Wavelets in Electromagnetics

E02:01 *Time domain solution of differential equations using biorthogonal B-Spline-wavelets*
M. Aidam, P. Russer, Lehrstuhl für Hochfrequenztechnik, Technische U. München, München, Germany

E02:02 *The wavelet optimized finite difference time domain method*
M. K. Sun, W. Y. Tam, Dpt of Electronic Engineering The Hong Kong Polytechnic U., Hung Hom, Kolwoon, Hong Kong

E02:03 *A wavelet operational method for solving linear partial differential equations*
C.-F. Chen, J.-L. Wu, Dpt. of Electrical Engineering, National Cheng Kung U., Tainan, Taiwan

E02:04 *Wavelet and propagation prediction for mobile radio communications*
R. Vauzelle, IRCOM-SIC U. de Poitiers, Futuroscope, France

E02:05 *Signal processing of data from magnetic flow detector devices using wavelet transformation*
J. Pistora, M. Lesnak, Dpt. of Physics, Technical U. Ostrava, Ostrava Poruba, Czech Republic ; J. Vlcek, Dpt of Mathematics, Technical U. Ostrava, Poruba, Czech Republic

E02:06 *Wavelet approximation of distributed parameters electric line*
M. Ziolko, U. of Mining and Metallurgy, Dpt. of Electronics, Krakow, Poland

Session F02
Tuesday, July 14 AM
Microstrip Antennas and Planar Antennas

F02:01 *Dynamic method applied in planar antenna design*
H. C.C. Fernandes, A. R. N. Farias, Dpt of Electrical Engineering, Federal U. of Rio Grande do Norte, Natal, RN, Brazil

F02:02 *Solution of radiation characteristics of a thin planar metal_dielectric antenna by the method of steepest-descent and Weinner-Hoff technique*
C. Das Gupta, Senior Member IEEE, Dpt of Electrical Engg, Indian Inst. of Technology, Kanpur ; A. KumarGogoi, Dpt of Electronics Engg., Gauhati, Assam, India

F02:03 *The diffraction of surface and space waves at the truncation of a planar dielectric structure*
V. Volski, G. Vandenbosch, Katholieke U. Leuven Faculteit Toegepaste Wetenschappen Dpt Elektrotechniek, Afdeling ESAT-TELEMIC, Leuven, Heverlee, Belgium

F02:04 *Slot antennas fed by a coplanar waveguide*
J. Parlebas, R. Schertlen, W. Wiesbeck, Inst. für Höchstfrequenztechnik und Elektronik U. of Karlsruhe, Karlsruhe, Germany

F02:05 *Theoretical and experimental analysis microstrip modular antenna on multilayer dielectric*
M. Wnuk, W. Koosowski, M. Amanowicz, Military U. of Technology, Electronics Faculty, Warsaw, Poland

F02:06 *Radiation from arbitrarily shaped microstrip patch antennas using the theory of characteristic modes*
G. Aguilli, G. Di Massa, Dpt di Elettronica, Informatica e Sistemistica U. della Calabria, Arcavacata di Rende, Italy

F02:07 *Broadband and multifrequency dielectric resonnator antennas*
A. Sangiovanni, Ch. Pichot, J. Y. Dauvignac, Laboratoire d'Electronique, Antennes et Telecommunications, U. de Nice-Sophia Antipolis, CNRS UPRESA 6071, Valbonne, France

F02:08 *Optimization of a 'YAGI-LIKE' stacked microstrip dipole array using evolutionary programming*
A. Hoorfar, S. S. Rao, ECE Dpt, Villanova U., Villanova, PA, USA ; K. Chellapilla, Dpt of ECE, U. of California, San Diego, CA, USA

F02:09 *Dual frequency microstrip antennas*
P. V. Hunagund, I. Ahmad Kahan, S. N. Mulgi, Dpt. of Applied Electronics, Gulbarga U., Karnataka, India ; R. M. Vani, U. Sci. Instrumentation Centre, Gulbarga U., Karnataka, India

F02:10 *Enhancement of bandwith of dual frequency rectangular microstrip antenna by feeding technique*
P. V. Hunagund, S. N. Mulgi, S. F. Farida, Dpt. of Applied Electronics, Gulbarga U., Karnataka, India ; R. M. Vani, U. Sci. Instrumentation Centre, Gulbarga U., Karnataka, India

Session G03
Tuesday, July 14 AM
Solitons and Non-linear Optical Fiber Transmission

G03:01 *Influence of mode dispersion on the optical pulses transformation within periodic nonlinear fiber*
D.I. Sementsov, I. O. Zolotovskiy, Ulyanovsk State U., Ulyanovsk, Russia

G03: 02 *Simulation of an WDM system using SIMNT*
L. S. Mendes, J. Klein, Faculdade de Engenharia Elétrica e de Computação U. Estadual de Campinas, Campinas, Spain

G03:03 *Experimental verification of bit pattern effects obtained in numerical simulations of a 10 GBit/s 1.3 μm optical communication system*
J. Eckert, S. Reichel, R. Zzngerle, U. Kaiserslautern, Fachbereich Elektrotechnik, Kaiserslautern, Germany ; R. Leppla, A. Mattheus, Technologiezentrum der Deutschen Telekon AG, Darmstadt

G03:04 *Erbium-doped nonlinear fiber coupler: influence of wavelength mismatch on soliton switching*
P. M. Ramos, J. R. Costa, C. R. Paiva, Dpt de Engenharia Electrotecnica e de computadores, Inst. for Telecommunications, IST, Lisboa, Portugal

G03:05 *Wavelength-Division multiplexing with solitons in Erbium-doped fiber amplifiers*
J. R. Costa, C. R. Paiva, Dpt de Engenharia Electrotecnica e de Computadores, Inst. for Telecommunications, IST, Technical U. of Lisbon, Lisbon, Portugal

G03:06 *Pulse Position Modulation (PPM) of solition trains in optical fibers*
J. I. da Silva, Dpt de Engenharia Elétrica, Centro de Tecnologia, U. Federal do Ceará, Ceará, Brazil ; A. S. B. Sombra, Laboratório de Óptica não Linear e Ciência dos Materiais (LONLCM) Dpt de Física, U. Federal do Ceará, Ceará, Brazil

G03:07 *Solition switching in three-core nonlinear directional fiber couplers*
A. F. Teles, Dpt de Engenharia Electrica, Centro de Tecnologia, U. Federal do Ceará, Ceará, Brazil ; A. S. B. Sombra, M. G. da Silva, Laboratório de Óptica não Linear e Ciência dos Materiais LONLCM, Dpt de Física, U.de Federal do Ceará, Ceará , Brazil

Session G04
Tuesday, July 14 AM
Microwave Components I

G04:01 *Implementing transmission zeros in broadside coupled microstrip filters*
A. Alvarez, M. M. Guglielmi, J. R. Mosig, Laboratoire d'Electromagnetisme et d'Acoustique, Ecole polytechnique Fédérale de Lausanne, Lausanne, Switzerland

G04:02 *Multilayered substrates to design high performance wideband couplers and filters*
S. Denis, Ch. Person, B. Della, S.Toutain, Laboratoire d'Electronique et des Systèmes de Télécommunications LEST-UMR 6616. ENST de Bretagne-UBO., Brest, France

G04:03 *A new design method for the realization of the LC low-pass filters using microstrip lines*
R. Ramiz, Yildiz Technical U., Electronic and Communication Eng. Dpt., Istanbul, Turkey

G04:04 *A new low-pass filter design based on the required phase response*
R. Ramiz, Yildiz Technical U., Electronic and Communication Eng. Dpt., Istanbul, Turkey

G04:05 *20 GHz tunable filter based on ferroelectric films*
V. N. Keys, A. B. Kozyrev, M.L.Khazov, St. Petersburg Electrotechnical U., St. Petersburg, Russia ; J. Sok, J. S. Lee, Samsung Advanced Inst. of Technologies, Korea

G04:06 *Analysis of a grating-assisted directional coupler using coupled-mode formulation based on singular perturbation technique*
K. Watanabe, K. Yasumoto, Dpt of Computer Sci. and Communication Engineering, Graduate School of Information and Electrical Engineering, Kyushu U., Fukuoka, Japan

Session H02
Tuesday, July 14 AM
Composite Material Modeling I
Workshop on Complex Media and Measurement Techniques
Organiser : C. Brosseau
Chairs : C. Brosseau, U. Federhof

H02:01 *Faraday effect in composites*
Dr. M. Barthelemy, CEA-CELV Service de la Matiere Condensee, Villeneuve-St-Georges, France

H02:02 *New aspects of the dynamic behaviour of partly magnetized composite materials*
P. Quéffélec, D. Bariou, M. Le Floch, U. De Bretagne Occidentale, U.F.R. Sci., Brest, France ; P. Gelin, ENST de Bretagne, Brest, France

H02:03 *Dielectric constant of lossy composite materials*
A. Béroual, Centre de Génie Electrique de Lyon, Ecole Centrale de Lyon, Ecully, France ; C. Brosseau, Dpt de Physique, U. de Bretagne Occidentale, Brest, France

H02:04 *Broadband dielectric spectroscopy as a method to characterise the microstructure of composite materials*
R. Pelster, G. Nimtz, Physilakisches Inst. der U. zu Köln, Koln, Germany

H02:05 *Dielectric constant and Van der Waals Binding energy of disordered polarizable systems*
B.U. Federhof, Insit. für Theoretische Physik, AACHEN, Germany

H02:06 *Dyadic Green's functions for multilayered isotropic media*
S. Y. Tan, E. L. Tan, Block S1 School of Electrical and Electronic Engineering Nanyang Technological U., Singapore, Russia

H02:07 *Modeling of interaction electromagnetic waves with random active media*
V.G. Spitsyn, Siberian Phisical and Technical Institute Tomsk State University, Tomsk, Russia

H02:08 *Fundamental limitation for thickness to bandwidth ratio of radar absorbers*
K. N. Rozanov, Sci. Center for Applied Problems in Electrodynamics (SCAPE), Russian Academy of Sci., Moscow, Russia

H02:09 *Magnetic and electrical studies of Ge(4+) and Ti(4+) substituted Li-Mg ferrite*
N. Kumar, I. Kishan, Solidstate Physics Laboratory, Delhi, India ; Z. H. Zaidi, Physics Dpt, New Delhi, India

H02:10 *Electromagnetic field interaction with a half-space with continuously time-varying conductivity*
I. Yu. Vorgul, Applied electrodynamics Dpt., Kharkov State U., Kharkov, Ukraine

J. I. P. R. 4 - Session I02
Tuesday, July 14, AM 08:40-12:20
Basic Polarimetric Concepts and Applications
Organiser : Y. Yamaguchi
Chairs : Y. Yamaguchi and D.L. Schuler

I02:01 *(Overview)* *Comparison of various POL-RAD and POL-SAR image feature sorting and classification algorithms*
E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark.

I02:02 *Resolution enhancement of the MUSIC algorithm with wave polarization*
H. Yamada, M. Yoshino, Y. Yamaguchi, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.

I02:03 *Scattering matrix of line targets aligned in the range direction*
Y. Yamaguchi, K. Kitiyama, H. Yamada, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.

I02:04 *(Overview)* *Optimal polarimetric contrast enhancement in partially polarized scattering*
M. Tanaka, Dept. of Electrical and Electronic Engineering, Oita University, Oita, Japan ; W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA ; H. Mott, Dept of Electrical Engineering, University of Alabama, Tuscaloosa, AL, USA.

I02:05 *Estimation of radar objects contrast using the group of Huynen-Euler invariant polarization parameters*
V.I. Karnychev, Tomsk University of Control System and Radioelectronics, Tomsk, Russia.

I02:06 *Suboptimum non-coherent polarimetric radar receiver canceling partially polarized clutter*
Z.H. Czyz, Telecommunications Research Institute, Warszawa, Poland.

I02:07 *Analysis methods of experimental mueller matrices*
J. Zallat, M. P. Stoll, ENSPS Laboratoire des Sciences de l'Image de l'Informatique et de la *Télédétection, Illkirch, France.*

I02:08 *Signal received by a bistatic radar from a moving target : applied to a canonical target*
O. Airiau, A. Khenchaf, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

Session J02
Tuesday, July 14 AM
Microwave Scattering From Rough Surfaces
Organiser : P. Pampaloni
Chairs : P. Pampaloni, S. Paloscia

J02:01 *Nadir cross-section of the ocean surface in case of rain calculated by using a two-scale model*
C. Craeye, P. Sobieski, A. Guissard, F. L. Bliven, U. Catholique de Louvain, Louvain la Neuve, Belgium

J02:02 *Synergic use of altimeter and scatterometer data for non fully developed sea-state parameters retrieval.*
D. Lemaire, P. Sobieski, A. Guissard, U. Catholique de Louvain, Louvain-La-Neuve, Belgium

J02:03 *A Monte-Carlo code for backscattering from aground in the presence of scatterers modelling vegetation elements*
P. Bruscaglioni, M. Gai, A. Ismaelli, S. Lolli, Dept. of Physics, U. of Florence, Florence, Italy

J02:04 *Characterisation of the soil roughness and microwave backscattering based on fractal brownian description*
M Zribi, O. Taconet, V. Ciarletti, CETP/CNRS/UVSQ, Velizy, France ; M Zribi, P. Paille, ENSICA, Toulouse, France ; P. Boissard, P. Valery, INRA-GRIGNON, France ; M. Chapron, B. Rabin, ENSEA, Cergy Pontoise, France

J02:05 *Validation of a fractal brownian modelisation of bare soil and its backscattering behaviour using SIR-C and ERASME 1994 data over Orgeval*
M Zribi, O. Taconet, V. Ciarletti, CETP/CNRS/UVSQ, Velizy, France ; M Zribi, P. Paille, ENSICA, Toulouse, France ; P. Boissard, P. Valery, INRA-GRIGNON, France ; M. Chapron, B. Rabin, ENSEA, Cergy Pontoise, France

J02:06 *Evaluation of sensitivities of soil moisture and surface roughness parameters on SAR measurements*
J. Shi, Inst. for Computational Earth System Sci., U. of California, Santa Barbara, USA

J02:07 *Microwave backscattering from bare rough soils : a caomparaison of experimental data and surface scattering models*
G. Macelloni, S. Paloscia, P. Pampaloni, S. Sigismondi, Ist. di Ricerca sulle Onde Elettromagnetiche CNR, Firenze, Italy ; G. Nesti, IRSA, Varese, Italy

J02:08 *Characterization of areas contributing to Runoff with SAR images in FLOODGEN project*
A. Remond, C. King, BRGM DR/GIG, Orléans, France ; F. Bonn, J. Smith, CARTEL U. de Sherbrooke, Quebec, Canada

Session K02
Tuesday, July 14 AM
Oblique Incidence Ionospheric Sounding : Theory and Observations
Organiser : L. R. Cander
Chairs : L. R. Cander, M. F. Levy

K02:01 *Ionospheric propagation modelling with the parabolic wave equation*
M.F. Levy, Radio Communications Research Unit, Rutherford Appleton Laboratory, Oxon, UK

K02:02 *On the methods for the description of HF propagation in the real ionosphere*
N. N. Zernov, Inst. of Radiophysics U. of St.Petersburg, St.Petersburg, Russia

K02:03 *Statistical characterization of the time variability in midlatitude single tone HF channel reponse*
F. Arikan, Dpt of Electrical and Electronics Engineering, Hacettepe U., Beytepe, Ankara, Turkey ; C. B. Erol, Dpt of Electrical and Electronics Engineering, Baskent U., Ankara, Turkey

K02:04 *Short-term ionospheric forecasting over Europe*
L. R. Cander, M.I. Dick, M. F. Levy, Rutherford Appleton Laboratory, Radio Communications Research Unit, Oxon, UK

K02:05 *Ionospheric variability seen by oblique sounding data*
A. Vernon, L. R. Cander, Rutherford Appleton Laboratory, Oxon, UK

K02:06 *Results from the 1997-98 UK oblique sounding campaigns*
R. A. Bamford, Rutherford Appleton Laboratory, Oxon, UK ; M. Lissimore, DERA Defense Evaluation and Research Agency, Worcs, UK

K02:07 *Theory of ionospheric propagation : distance between theory, experience and model*
C. Goutelard, LETTI U. Paris-Sud, Orsay, France

K02:08 *Extremely low power vertical and oblique ionospheric sounding*
C. Goutelard, C. Pautot, LETTI U. Paris-Sud, Orsay, France

Session L02
Tuesday, July 14 AM
Biological Effects
Organisers : J. Wiart, B. Veyret
Chairs : J. Wiart, B. Veyret

L02:01 *Key issues for the evaluation of interactions between a hand-held radiotelephone and the user*
C. Grangeat, Alcatel Alsthom Recherche, Marcoussis, France

L02:02 *Exposure device for applying RF/microwave fields to biological preparations*
Ph. Leveque, L. Laval, B. jecko, I.R.C.O.M, Faculté des Sciences, Limoges, France

L02:03 *Numerical and experimental evaluation of E-field and absorbed power in the Pelvic region using a bone-equivalent phantom*
J. Nadobny, P. Wust, H. Fähling, R. Felix, Strahlenklinik und Poliklinik, Berlin, Germany; D. Stalling, M. Seebass, P. Deuflhard, Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB), Berlin, Germany

L02:04 *Effects of GSM microwaves on lipoperoxidation and DNA fragmentation in the brain of rats*
R. Anane, B. Veyret, Laboratoire PIOM, ENSCPB, Tlence, France

L02:05 *Health effects of mobile phones : human studies*
R. de Seze, L. Miro, Laboratoire de Biophysique Médicale, Faculté de Médecine, Section de Nîmes, Nîmes, France

L02:06 *Overview of the findings from motorola-sponsored health effects research*
M. L. Swicord, J. J. Morrissey, Q. Balzano, Florida Corporate Electromagnetics Research Laboratory, Motorola, Fort Lauderdale, FL, USA

L02:07 *Biological Effects of 900-Mhz microwave exposure : the experience of the ENEA group*
C. Marino, G. Lovisolo, Dpt. of Environment, Roma, Italy

L02:08 *SAR distribution into homogeneous and not homogeneous phantoms and into an anatomical model of the human head generated by cellular phones*
A. Schiavoni, P. Bertotto, G. Richiardi, P. Bielli, CSELT - Centro Studi E Laboratori Telecomunicazioni S.p.A., Torino, Italia ; C. Gabriel, MCL, UK

Session M02
Tuesday, July 14 AM
Near Field 1 : from Microwaves to Optics
Workshop on Complex Media and Measurement Techniques
Organisers : J. Ch. Bolomey, J. J. Greffet
Chair : H. Cory

M02:01 *What is the signal measured by a scanning near-field optical microscope ?*
J. J Greffet, R. Carminati, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France

M02:02 *The non-resonant perturbation technique for measurements of electromagnetic fields at radio and microwave frequencies*
D. V. Land, Dpt of Physics and Astronomy, U. of Glasgow, Glasgow, UK

M02:03 *Near-field experimental and theoretical studies of the optical signal of a half conductor plane obtained with an apertureless probe*
S. Grésillon, A. C. Boccara, Laboratoire d'Optique Physique, Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris , Paris , France ; J. C. Rivoal, U. P. et M. Curie, Centre National de la Recherche Scientifique, Paris, France ; H. Cory, Electrical Engineering Dpt, Haifa, Israel

M02:04 *Some recent developments in the theoretical investigation of near-field optical microscopy*
O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics, Swiss Federal Inst. of Technology, Zurich, Switzerland

M02:05 *Signals reconstruction from their square complex distributions*
V. Pascazio, Ist. di Teoria e Tecnica delle Onde Elettromagnetiche, Ist. U. Navale, Napoli, Italy ; R. Pierri, Dpt di Ingegneria dell'Informazione, Seconda U. di Napoli, Aversa, Italy

M02:06 *On the concept of phase in near-field optics*
R. Carminati, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France

M02:07 *Analysis of nonlinearly loaded antennas*
T. K. Sarkar, Dpt of ECE, Syracuse U., Syracuse, NY, USA

M02:08 *Sampling criteria for low frequency near-field techniques*
D. Picard, J. Ch. Bolomey, Service Electromagnetisme/Supelec/CNRS, Gif sur Yvette, France

Session A03
Tuesday, July 14 PM
Scattering and Diffraction of Electromagnetic Waves
Organiser : S.-Y. Kim
Chairs : S.-Y. Kim, S. Nam

A03:01 *Efficient representation of the rectangular waveguide and cavity Green's function*
M.-J. Park, S. Nam, Applied Electromagnetics Lab., Inst. of New Media and Communications, Seoul National U., Seoul, Korea

A03:02 *Classification of airplane-like targets using scattering centers and RBF network*
K.-T. Kim, J.-Ho Lee, S.-H. Seok, J.-H. Jeong, H.-T. Kim, Pohang U. of Sci. and Technology, Kyung-buk, Korea ; K.-I. Kwon, The Agency for Defense Development, Taejon, Korea

A03:03 *Effects of observation distance change in the diffraction pattern by a cylindrical air cavity*
T.-K. Lee, Dpt. of Avionics, Hankuk Aviation U., Kyunggi-do, Korea ; S.-Y. Kim, Applied Electronics Lab. KIST, Seoul, Korea ; J.-W. Ra, Dpt of Electrical Eng. KAIST, Taejon, Korea

A03:04 *A spectral domain wavelet analysis of scattering*
H. Kim, S. Kahng, S. Ju, J. Lee, Dpt. of Electrical & Computer Sci. Eng., Hanyang U., Seoul, Korea

A03:05 *An iterative inverse scattering of a high contrast and large size object by using the FEM-LM and prior knowledge of back ground medium*
C.-S. Park, Dpt. of Electronic Engineering, Sung Kyun Kwan U., Kyungki-do, Korea ; School of EECE, Donga U., Pusan, Koera

A03:06 *Diffraction coefficients of a composite wedge consisting of perfect conductor and lossless dielectric*
S.-Y. Kim, Division of Electronics and Information Technology Korea Inst. of Sci. and Technology, Seoul, Korea

A03:07 *Scattering anomalies by the periodic strip grating in a grouded dielectric slab*
Y.-K. Cho, Dpt. of Electronics, Kyungpook National U., Taegu, Korea ; J.-W. Ra, Dpt of Electrical, Engineering, Korea Advanced Inst. of Sci. and Tech; Taejon, Korea

A03:08 *Electrostatic potential distribution through multiple rectangular apertures in a thick conducting plane*
H. H. Park, H. J. Eom, Dpt. of Electrical Engineering, Korea Advanced Inst. of Sci. and Technology, Taejon, Korea

A03:09 *Multiple scattering and diffraction of x-ray gaussian beam by many atom distributions*
Y. Miyazaki, S. Tujimoto, Dpt. of Information and Computer Sci., Toyohashi U. of Technology, Toyohashi, Japan

Session B03
Tuesday, July 14 PM
Electromagnetic inverse scattering problems

Organisers : Ch. Pichot, S. Caorsi
Chairs : Ch. Pichot, T. Habashy

B03:01 *One-dimensional profile inversion problems related to lossy slabs terminated by an inhomogeneous boundary*
I. Akduman, Electrical and Electronics Engineering Faculty, Istanbul Technical U., Istanbul, Turkey

B03:02 *Inverse scattering problem for stratified anisotropic medium*
D. Shepelsky, D. Sheen, Global Analysis Research Center, Dpt of Mathematics, Seoul National U., Seoul, Korea ; A. Boutet de Monvel, Inst. de Mathématiques, U. Paris, Paris, France

B03:03 *An inverse and optimization time domain problem for a stratified, biperiodic and 2D medium*
S. Alestra, E.Duceau, Dpt. Modélisation Numérique, Aerospatiale CCR, Suresnes, France

B03:04 *Inverse scattering using FDTD*
R.D Murch, K. Ben Letaief, Dpt of Electrical and Electronic Engineering, Hong Kong U. of Sci. and Technology, Kowloon, Hong Kong

B03:05 *Three dimension reconstructions using a time reversal matrix method*
S. Barraud, J.L. Dubard, D. Pompei, Laboratoire d'Electronique, Antennes et Télécommunications, Valbonne, France

B03:06 *Time domain modeling of interferometic measurements*
B. Houshmand, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, CA, USA

B03:07 *Reconstruction of complex permittivity profiles of maxwellian scatterers by means of multiple frequencies of irradiation. A finite element -sensitivity analysis technique*
I.T. Rekanos, T.D. Tsiboukis, Division of Telecommunications, Dpt. of Electrical and Computer Engineering, Aristotle U. of Thessaloniki, Thessaloniki, Greece

B03:08 *Electrical characterization of materials by solving an inverse problem using the EMIR method*
B. Pliquet, X. Ferrieres, P. Levsque, J.-C. Alliot, ONERA, Meudon, France ; B. Duchene, Laboratoire des signaux et systemes, Supelec, Gif sur Yvette, France

B03:09 *Impedance determination for the optimization of diffraction patterns*
D. Felbacq, J.L. Roumiguieres, LASMEA, U. Blaise Pascal, Aubière, France ; P. Vincent, U. d'Aix-Marseille III, Marseille, France

B03:10 *Refractivity modeling for the inverse medium problem in tropospheric electromagnetic propagation*
L. Ted Rogers, Propagation Division Space and Naval Warfare Systems Center, San Diego, CA, USA

B03:11 *Some numerical aproaches to solving the inverse problems of electromagnetoelasticity*
A. V. Avdeev, E. V. Goruynov, V. I. Priimenko, Inst. of Computational Mathematics and Mathematical Geophysics (Novosibirsk Computing Center), Novosibirsk, Russia

Session C03
Tuesday, July 14 PM
Advanced Techniques for Absorbing Boundaries in Computational Electromagnetics

Organiser : J. P. Berenger
Chairs : J. P. Berenger, F. Jecko

C03:01 *Anisotropic perfectly-matched absorber for unstructured grid truncation*
Li Zhao, Dept of Electrical and Computer Engineering, U. of Arizona, Tuscon, USA ; C. Cangellaris, Dpt of Electrical and Computer Engineering U. of Illinois at Urbana - Champaign, Urbana, USA

C03:02 *PML for curvilinear coordinates via complex coordinate system*
F.Teixera, W.C.Chew, Electromagnetics Laboratory, Dpt of Electrical and Computer Engineering, U. of Illinois, Urbana, IL, USA

C03:03 *A new look at Berenger's absorbing boundary conditions : extension to 3D magnetic and dielectric anisotropic media*
I. Villo-Perez, S. Gonzales Garcia

C03:04 *Conductivity profile optimization for the PML ABC in FDTD*
E. L. Miller, C. M. Rappaport, E. A. Marengo, Center for Electromagnetics Research, Northeastern U., Boston, MA, USA

C03:05 *Perfectly matched layers in the transmission line matrix method*
D. Pompei, J. L. Dubard, Electronics, Antennas and Telecommunications Laboratory, Nice Sophia Antipolis U., Valbonne, France

C03:06 *The application of the complementary operators theory to non-analytic boundary conditions and unstaggered FDTD mesh*
O. M. Ramahi, Digital Equipment Corporation, Maynard, MA, USA

C03:07 *PML for paraxial electromagnetic codes*
A.A. Zaporozhets, Rutherford Appleton Laboratory, Didcot, UK,

C03:08 *Implementation of the PML in the parabolic equation*
A. Reinex, B. Jecko, IRCOM-UMR CNRS 6615, Equipe Electromagnetisme, Faculte des Sciences, Limoges, France ; J. P. Berenger, ETCA/CAD, Arcueil, France

C03:09 *Exact "absorbing" boundary conditions for FDTD algorithms in non classic domains*
A. O. Perov, Y. K. Sirenko, N. P.Yashina, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine

C03:10 *A comparative study of the PML absorbing boundary condition and the higher-order absorbing boundary condition*
S. Leonhard, Dpt. of Theoretical Electrical Engineering and Optical Communications, U. of Kaiserslautern, Kaiserslautern

C03:11 *Equivalence of linear and exponent time-stepping forms in PML medium*
Y.W Liu, City U. of Hong Kong, Dpt of Electronic Engineering, Kowloon, Hong Kong

Session D03
Tuesday, July 14 PM
Novels Mathematicals Methods in Electromagnetics
Organiser : Yu. V. Shestopalov
Chairs : Yu. V. Shestopalov, Kazuya Kobayashi

D03:01 *An analysis of modal coupling and cutoff properties of open and closed-boundary waveguides using singularity theory*
G. W. Hanson, Dpt. of Electrical Engineering and Computer Sci., U. of Wisconsin-Milwaukee, Milwaukee, Wisconsin, USA ; A. B. Yakovlev, Ansoft Corporation, Four Station Square, Pittsburgh, PA, USA

D03:02 *Plane wave diffraction by a strip with different surface impedances*
E. I. Veliev, Inst. of Radiophysics and Electronics, Ukrainian Academy of Sci., Kharakov, Ukraine ; K. Kobayashi, M. Ogata, Dpt. of Electrical and Electronics Engineering, Chuo U., Tokyo, Japan ; S. Koshikawa, Antenna Giken Co., Omiya, Japan

D03:03 *Pseudodifferential equations method for electromagnetic screen problem in R3*
Y. G. Smirnov, Dpt of Mathematics, Pensa State Technical U., Penza, Russia

D03:04 *Explicit expressions for the spectrum of normal waves of an open slot waveguide*
E. V. Chernokozhin, Moscow State U., Advanced Education and Sci. Center, Moscow, Russia

D03:05 *Reconstruction of a singular potential in the multidimensional Schrodinger equation with applications to the wave scattering*
V.S. Serov, Dpt. of Computational Mathematics and Cybernetics (BMK), Moscow State U., Moscow, Russia

D03:06 *Method based on singular integral equations for solving nonhomogeneous diffraction problem*
A. S. Illinski, A. B. Samokhin, U. U. Kapustin, Dpt. of Computational Mathematics and Cybernetics, Moscow State U., Moscow, Russia

D03:07 *Analytical regularization methods in diffraction theory*
Y. A. Tuchkin, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine

D03:08 *High-Q and low-Q open resonators : methods, results, and perspectives*
Yu. V. Shestopalov, Dpt. of computational Mathematics and Cybernetics, Moscow State U., Moscow, Russia

D03:09 *Projection method to investigate the two dimension problem of the wave scattering by a metallic cylindre of arbitrary shape in the high frequency domain*
V.F. Apelt'cin, Dpt. of Comput. Math and Cybern. of Moscow State U., Moscow, Russia

D03:10 *Exact, uniform asymptotic, and numerical constructions of Helmholtz operator symbols*
L. Fishman, Naval Research Laboratory, MS, USA

D03:11 *Surface and leaky guided waves on dielectric fibres of arbitrary cross-section*
E.M. Karchevskii, Russia, Kazan State U., Kazan, Russia

D03:12 *Scattering by an infinite grating with a groove structure of a finite size*
E. Lipachev, Dpt. of Mechanics and Mathematics, Kazan State U., Kazan, Russia

D03:13 *On the electromagnetic scattering problem for a perfectly conducting infinite cylinder contained in the wedge*
Y. Podlipenko, Faculty of Cybernetics, Kiev U., Kiev, Ukraine

Session E03
Tuesday, July 14 PM
Genetic Algorithm and Optimization

Organiser : H. J. Mametsa
Chair : H. J. Mametsa, Y. Rahmat-Samii

E03:02 *Optimization design tools in engineering electromagnetics*
Y. Rahmat-Samii, Dpt of Electrical Engineering, U. of Californie Los Angeles, Los Angeles, CA, USA

E03:03 *One the use of the genetic algorithm for RCS modelling*
A. Dorey, THOMSON C.S.F Applications Radar, Vlizy-Villancoublay, France

E03:04 *Numerical solution to the electromagnetic scattering by nonlinear objects by using genetic algorithms*
S. Caorsi, Dpt. of Electronics, U. of Pavia, Pavia, Italy ; A. Massa, M. Pastorino, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genoa, Italy

E03:05 *A Wire antenna designed for use on the lossy-earth interface using a genetic algorithm*
A. J. Terzuoli, Air Force Inst. of Technology, Dayton, OH, USA

E03:06 *Pattern synthesis of antenna array by an improved genetic algorithm using non-uniform probability density function*
C.-L. Li, T.-A. Chen, Eelctrical Engineering Dpt., Tamkang U., Taipei Hsien, Taiwan

E03:07 *A new priority rotation methodology to improve the performance of genetic algorithms*
G. Raghavendra Rao, K. Chidananda Gowda, Dpt of Computer Sci. an Engineering, S. J. College of Engineering, Mysore, India

E03:08 *Design of optical devices using-genetic algorithms*
J. C. C. Carvalho, J. C. W. A. Costa, Dpt de Engenharia Elétrica - Centro Tecnológico da UFPA, Belém/PA,Brazil

E03:09 *Design of ultra-wideband EMC antennas using the genetic algorithm*
Z. Altman, J. Wiart, S. Chaillou, B. Fourestié, France Télécom, CNET, Issy les Moulineaux, France ; R. Mittra, Pennsylvania State U. Park, PA, USA

E03:01 *Genetic algorithm optimization for RCS scatterer model*
H.J. Mametsa, ONERA-CERT/DEMR, Toulouse, France ; P. Leguillette, Ecole de L'Air, Salon de Provence, France

Session F03
Tuesday, July 14 PM
Aperture Antennas

F03:01 *Phase error in dual-ridged horn antennas*
C. D. McCarrick, Seavey Engineering Associates, Inc., MA, USA

F03:02 *A new type miniaturized X-Ku band conical horn and helix combination antenna*
L. Maoheng, L. Guogong, L. Wen, Z. Shan Li, Harbin Engineering U., Dpt of Electronic Engineering, China

F03:03 *Offset characteristics of elliptic fresnel-zone-plate lens*
T. Onodera, T. Hoashi, E. Kimura, Dpt. of Electronic Engineering, Kumamoto Inst. of Technology, Kumamoto, Japan

F03:04 *Phase space analysis and aperture theory: an alternative to Gabor series*
D. Lugara, I. A. Ehtezazi, C. LETROU, INT / EPH, Evry, France ; D. Lugara, Observatoire de Paris, DEMIRM, Paris, France

F03:05 *The effect of the first sidelobes of the feed antenna on the radiation pattern of the 2D circular reflector antenna system.*
T. Oguzer, Dpt. of Electrical and Electronics Eng., Dokuz Eylül U, Buca, Izmir, Turkey

F03:06 *Radiation fields of a complex source in a circular cylindrical radome with metal grating*
A. Altintas, S. Ouardani, V. Yurchenko, Bikent U., Dpt. of Electrical and Electronics Engineering, Ankara, Turkey ; V. Yurchenko, Inst. of Radiophysics and Electronics National Academy of Sci., Kharkov, Ukraine

F03:07 *Radioholographic adjustement of the 64-meter russian reflector antenna in medvezhy ozera*
A. V. Kalinin, Radiophysical Research Institute, Nizhny Novgorod, Russia

F03:08 *Small flat multi-panel reconfigurable reflector antenna : theoretical investigation*
S. Phermphoonwatanasuk, C. Wai yapattanakorn, Dpt. of electrical Engineering , Chulalongkorn U., Bangkok, Thailand

F03:09 *Scanning dual reflector antenna with rotating curved subreflector*
M. Edita de Lorenzo, Antonio G. Pino, Dpt. Tecnologias de las Communicaciones, E.T.S.I.T, U. de Vigo, Vigo, Spain

Session G05
Tuesday, July 14 PM
Passive and Active Optical Waveguides

G05.08 *Optimum self phase modulation profile for nonlinear transmission recovery in twin core optical couplers with loss*
K. Z. Nobréga, Dpt de Engenharia Elétrica, Centro de Tecnologia, U. Federal do Ceará, Ceará, Brazil ;
A. S. B. Sombra, Laboratório de Óptica não Linear e Ciência dos Materiais (LONLCM) Dpt de Física, U. Federal do Ceará, Cerá, Brazil

G05:09 *Multifunctional two-electrode Fabry-Perot device*
Y. Boucher, J.-M. Boucher, ENIB Laboratoire RESO, Brest, France

G05:10 *Coupled-Mode analysis of bent three-dimensional optical structures*
M. Miriannashvili, K. Ono, M. Hotta, Dpt of Electrical and Electronic Engineering, Dpt Faculty of Engineering Ehime U., Matsuyama, Japan

G05:11 *2-Mode design theory for symmetric multi-branch optical dividers*
K. Ono, M. Hotta, Dpt of Electrical and Electronic Engineering, Dpt Faculty of Engineering Ehime U., Matsuyama, Japan ; I. Nagano, NEC Software Shikoku Co., Matsuyama, Japan

G05:12 *System simulation of digital optoelectronic circuit detrimental effects*
P. Vigier, C. Berthelemot-Aupetit, J. M. Dumas, U. de Limoges, ENSIL - Parc d'Ester Technopole, Limoges, France

G05:13 *Femto second dynamic characteristics of integrated optical amplifiers using ER-doped garnet film waveguides*
Y. Miyazaki, R. Balasubramanian, Dpt. of Information and Computer Sci., Toyohashi U. of Technology, Toyohashi, Japan

Session G06
Tuesday, July 14 PM
Electrodynamics of High Tc Superconductors
Organiser : G. P. Srivastava
Chairs : G. P. Srivastava, M. Pyee

G06:01 *Surface impedance of high Tc superconductors using traditional and modified phenomenological models : an overview*
G.P. Srivastava, V. Mathew, Dpt of Electronic Sci., U. od Dehli South Campus, New Dehli, India ; A. G. Vedeshwar, Dpt of Physics and Astrophysics, U. of Delhi, Delhi, India

G06:02 *Electrodynamic behavior of Ag-doped YBCO films grown by laser ablation*
J. Kim, K.-Y. Kang, Research Dptt, Electronics and Telecommunications Research Inst., Taejon, South Korea

G06:03 *Analysis of HTS microwave planar circuits: a general computational scheme*
V. Mathew, Dpt of Electronic Sci., U. od Dehli South Campus, New Dehli, India ; A. G. Vedeshwar, Dpt of Physics and Astrophysics, U. of Delhi, Delhi, India

G06:04 *Surface resistance of Ag-doped YBa2Cu3O7 thin films*
J. Mazierska, M. V. Jacob, Dpt of Electrical and Computer Engineering, James Cook U., Townsville, Australia ; J. Kim, K.-Y. Kang, Research Dpt, ETRI, Yusong, Taejon, S. Korea ; M. V. Jacob, G. P. Srivastava, Dpt of Electronic Sci., Delhi U. South Campus, New Delhi, India

G06:05 *Theoretical analysis of superconducting transition temperature in fullerides*
S.P. Tewari, K. Bera, P. Silotia, Dpt of Physics and Astrophysics, U. of Dehli, Dehli, India

G06:06 *Review of different techniques for tuning microstrip circuits based on SHTC thin films*
S.Sautrot, M.Pyée, L.D.I.M, Tour 12-22, Univ. Paris VI, Paris, France

G06:07 *Modelling the electrodynamic response of composite superconducting structures in the mixed state*
Mark W. Coffey, General Dynamics Information Systems, USA

Session H03
Tuesday, July 14 PM
Composite Material Modeling II
Workshop on Complex Media and Measurement Techniques

H03:01 *Effects of a finite screening length on the absorption of electromagnetic waves*
J.-J. Niez, Service de Physique Nucléaire, CEA, Bruyères le Châtel, France ; R. Balian, Service Physique Théorique, Gif-sur-Yvette, France

H03:02 *To the electrodynamics of crystalline media with a randomly varying parameters*
G. V. Jandieri, Zh. M. Diasamidze, V.D. Glonti

H03:03 *Bulk conductivity of two-phase composites with randomly-distributed spheroidal inclusions*
N. Harfield, School of Physical Sci., Dept. of Physics, U. of Surrey, Guilford, Surrey, England

H03:04 *Frequency behavior of percolating systems*
R. A. Gerhardt, School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, USA; D. S. McLachlan, Dpt. of Physics, U. of Witwaterstand, Johannesburg,South Africa

H03:05 *Magneto-optical properties of metal-dielectric composites with a periodic microstructure*
Y. M. Strelniker, D. J. Bergman, School of Physics and Astronomy, Raymond and Beverly Sackler Faculty of Exact Sci., Tel Aviv U., Tel Aviv, Israel

H03:06 *Propagation characteristics of multiple-scattered polarised light in random media*
K.I. Hopcraft, B. P. Abilitt, E. Jackeman, P. C. Y. Chang, J. G. Walker, Dpt of Theoretical Mechanics U. of Nottingham, Nottingham ; D. L. Jordan, G. D. Lewis, Defense Research Agency, Malvern Worcestershire, UK

H03:07 *The design principles and measurement of surface wave absorbing materials*
F C Smith, Dpt of Electronic Engineering, U. of Hull, HU6 7RX, UK ; S. Y. M. R. Stroobandt, ESAT-TELEMIC, K. U. L EUVEN, Heverlee, Belgium

H03:08 *Group theoretical approach to complex and composite media description*
V. Dmitriev, U. Federal of Para, Belem-PA, Brazil

H03:09 *Group theoretical methods for eigenvalue problems of symmetrical and composite homogeneous media*
V. Dmitriev, U. Federal of Para, Belem-PA, Brazil

H03:10 *Reflection properties of magneto-optic grating in comparison with magneto-optic ultrathin films*
D. Ciprian, K. Postava, J. Pistora, Dpt. of Physics, Technical Univ. Ostrava, Ostrava Poruba, Czech Republic

H03:11 *Fractal Superlattices: A Frequency Domain Approach*
A.D. Jaggard, Dpt. of Mathematics, Wheaton College, Wheaton, U.S.A ; Dwight L. Jaggard, Moore School of Electrical Engineering , Complex Media Laboratory, U. of Pennsylvania, Philadelphia, USA.

H03:12 *Remote characterization of fractal superlattices using wavelets*
Herve Aubert, Ecole Nationale Superieure d'Electrotechnique, d'Electronique, d'Informatique et d'Hydraulique, Institut National Polytechnique, Toulouse, France; Dwight L. Jaggard, Complex Media Laboratory, Moore School of Electrical Engineering, School of Engineering and Applied Science, Philadelphia, USA.

J. I. P. R. 4 - Session I03
Tuesday, July 14, PM 13:40-17:20
POL-SAR Image Processing
Organiser : J.S. Lee
Chairs : J.S. Lee and T.L. Ainsworth

I03:01 *POL-SAR speckle filtering and terrain classification - an overview*
(Overview) J.S. Lee, Remote Sensing Division, Naval Research Laboratory, Washington, DC, USA.

I03:02 *Interpretation of high resolution polarimetric SAR data*
E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark ; J. S. Lee, T. L. Ainsworth, Remote Sensing Div., Naval Research Laboratory, Washington, DC, USA ; S. R. Cloude, AEM, St Andrews, Scotland ; W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA

I03:03 *High-resolution polarimetric SAR for littoral remote sensing*
T. L. Ainsworth, J. S. Lee, Remote Sensing Div., Naval Research Laboratory, Washington, DC, USA ; E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark.

I03:04 *What eigenvalues and eigenvectors can offer in decomposition of polarimetric Stokes matrix*
Y. Dong, School of Geomatic Engineering, University of New South Wales, Sydney, Australia

I03:05 *Terrain DEM extraction and azimuthal-slope corrections using polarimetric SAR data*
(Overview) D. L. Schuler , J.S. Lee, T. L. Ainsworth, Remote Sensing Division, Naval Research Laboratory, Washington, DC, USA.

I03:06 *Unsupervised classification of polarimetric SAR images by applying target decomposition and complex Wishart distribution*
J.S. Lee, M. R. Grunes, T. L. Ainsworth, L. Du, D. L. Schuler, Remote Sensing Division, Naval Research Laboratory, Washington, DC, USA ; S.R. Cloude, AEM Ltd., St Andrews, Scotland.

I03:07 *POL-InSAR imaging and applications to Geo/Eco-Environmental stress change monitoring*
W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA

I03:08 *Speckle well modeled by Mellin transform : application to SAR images*
J. Nicolas, A. Maruani, Dpt. IMA, Ecole Nationale Supérieure des Télécommunications, Paris, France

Session J03
Tuesday, July 14 PM
Microwave Remote Sensing of Snow and Ice

Organiser : H. Rott
Chairs : H. Rott, C. Maetzler

J03:01 *Microwave emission model of a layered snowpack*
A. Wiesmann, C. Mätzler, Inst. of Applied Physics, U. of Bern, Bern, Switzerland

J03:02 *Microwave emission model of layered snowpacks applied to melt-refreeze cycles*
C. Mätzler, A. Wiesmann, Inst. of Applied Physics, U. of Bern, Bern, Switzerland

J03:03 *The use of 85GHz SSM/I data for snow parameter estimation in the SNOW-TOOLS project*
A.P. Standley, A. R. Harrison, Centre For Remote Sensing U. of Bristol, Bristol, England

J03:04 *Image fusion techniques using SAR and EO imagery for snow cover mapping in the Swiss Alps*
J. Piesbergen, H. Haefner, Remote Sensing Laboratories (RSL), Dpt. of Geography, U. of Zurich, Zurich, Switzerland

J03:05 *Study of snowpack conditions limiting application of the developed SAR algorithms for water equivalent and wet snow mapping from observed and simulated ERS-1 and Radarsat backscattering coefficients*
J. P. Fortin, M. Bernier, N. Baghdadi, Y. Gauthier, INRS-Eau, Ste-Foy, Québec, Canada ; J. P. Dedieu, LAMA-CNRS, Grenoble, France ; R. Gauthier, VIASAT Géo-technologies Inc., Montréal, Québec, Canada ; P. Vincent, Hydro-Québec, Montréal, Québec, Canada

J03:06 *EQ-EAU: an operational monitoring prototype for snow-water equivalent estimation from radarsat images*
M. Bernier, J. P. Fortin, Y. Gauthier, J. Fitzback, F. Gendron, A. Royer, INRS-Eau, Ste-Foy, Québec, Canada ; R. Gauthier, Hydro-Québec, Montréal, Qebec, Canada ; L. Dube, P. Vincent, VIASAT Géo-Technologies Inc., Montréal, Québec, Canada

J03:07 *Classification of snow scattering behaviour using polarimetric decomposition theorems*
L. Ferro-Famil, T. Landeau, E. Pottier, J. Saillard, IRESTE, U. of Nantes, SEI Laboratory, EP CNRS 63, Nantes, France ; J. P. Dedieu, Remote Sensing - GIS Team - LAMA - CNRS, Grenoble , France

J03:08 *Characterization of snow and ice by means of SIR-C/X-SAR and AIRSAR data*
D. Floricioiu, H. Rott, Inst. of Meteorology and Geophysics, U. of Innsbruck, Austria

J03:11 *Seasonal evolution of the 1988-89 Northern great plains snow pack from satellite passive microwave observations*
N.M. Mognard, CESBIO-CNES, U. of Puget Sound, Tacoma, USA ; E. G. Josberger, USGS-Ice and Climate Project, U. of Puget Sound, Tacoma, USA ; P. Gloersen, Oceans and Ice Branch, Loboratory for Hydrospheric, Greenbelt, USA

Session K03
Tuesday, July 14 PM
Remote Sensing of Natural Media

Organiser : F. Yanovsky
Chairs : F. Yanovsky, A. Nosich

K03:01 *Clear air attenuation maps for the United Kingdom at millimeter window frequencies*
O. Davies, A. Papatsoris, U. of York, Dpt. of Electronics, York, UK

K03:02 *A treasure trough of data : plans for the utilization of the DOE-ARM data-stream for cloud studies*
J. Verlinde, E. E. Clothiaux, D. M. Babb, J. Mather, R. Marchand, N. L. Miles, T.P. Ackerman, Pennsylvania State U., USA

K03:03 *Influence of clouds and precipitation on the third Stokes parameter microwave emission from the system «atmosphere-ocean» observed from space*
B. G. Kutuza, G. K. Zagorin, Academy of Sci., Moscow, Russia ; A. Hornbostel, A. Schroth, Inst. Fuer Hochfrequenztech., Germany

K03:04 *The influence of atmosphere turbulence on spectrum fluctuations of intensity of reflective non-monochromatic signal*
A. G. Gorelik, V. V. Frolov, Moscow State Academy of Sci., Moscow, Russia

K03:05 *Optical properties of unspherical and oscillating raindrops*
V.V. Sterlyadkin, A. V. Tarasenko, Moscow State Academy of Instrument Engineer., Moscow, Russia

K03:06 *Application of Doppler-correlation principle to wind measurements*
V.V. Sterlyadkin, A. G. Gorelik, A. U. Kotov, Moscow State Academy of Instrument Engineer., Moscow, Russia

K03:07 *A model of atmospheric turbulence which takes into account the effect of imperfect response of scatterers into the turbulent contribution to Doppler spectrum*
F. J. Yanovsky, U. of Civil Aviation, Kiev, Ukraine

K03:08 *Investigations of the influence of various meteorogical parameters on the statistical characteristics of the radar signal*
A.L.Knyazev, Moscow State Academy of Instrument Engineer., Moscow, Russia

K03:09 *Wave pattern of a guided radar system*
N. Blaunstein, Z. Dank, Ben-Gurion U. of the Negev, Israël ; M. Zilbershtein, Magal Security, Ltd., Israël

K03:10 *Modeling reflector antennas in the presence of earth*
A. I. Nosich, Laboratory of Computational Electromagnetics Inst. of Radiophysics and Electronics, Ukrainian Academy of Sci., Kharkov, Ukraine ; S. V. Boriskina, Dpt Radiophysics, Kharkov State U., Kharkov, Ukraine ; A. Altinta, Dpt Electrical and Electromagnetics Engn. Bilkent U., Ankara, Turkey

K03:11 *Electromagnetic and scalar waves diffraction by axially symmetrical system of circular strip*
Y.A. Tuchkin, Insti. of Radiophysics and Electronics, Kharkhov, Ukraine ; F.J.Yanovsky, Kiev International U. of Civil Aviation, Kiev, Ukraine; V. V. Veremey, Pennsylvania State U., USA ; E. Karacuha, GIT Gebze Insti. of Technology, Turkey

K03:12 *Meteorological application of dual-polarization radars*
A. B. Shupiatsky, Central Aerological Observatory - CAO Dologoprudny, Moscow Region, Russia

K03:13 *The adaptative threshold data processing for buried object detection problem*
I. Kaploun, T. Nesterov, V.Sazonov, Radiotechnical Inst., Moscow, Russia

Session L03
Tuesday, July 14 PM
Biological Effects II

L03:01 *A hybrid method of moments / method of auxiliary sources (MoM/MAS) technique applied to the calculation of the electromagnetic field generated by a hand-held transceiver in various head models*
K.S. Nikita, G. S. Stamatakos, D. Economou, N. K. Uzunoglu, National Technical U. of Athens Dpt of Electrical & Computer Engineering, Athens, Greece

L03:03 *The parameters of the bioinformational channel on longitudinal electromagnetic waves*
V. I. Afromeev, E. I. Nefyodov, A. A. Protopopov, A.A. Khadartsev, A.A Yashin, Research Inst. of Modern Medical Technologies, Tula, Russia

L03:04 *Cellular phones, user interactions : effect of clothes metallic glasses and jewels on the far field pattern*
L. Ahlonsou, D. Picard, J. Ch. Bolomey, Service Electromagnetisme/ Supelec/ CNRS, Gif sur Yvette, France

Session L04
Tuesday, July 14 PM
Wireless Sensor and Communications Techniques I

Organisers : A. Springer, R. Weigel
Chair : R. Weigel

L04:01 *The near range radar network (NRN) as an example for a multi-sensor-system with autonomous communication links*
B. Röde, K.-H. Bethke, A. Schroth, DLR Oberpfaffenhofen, Germany

L04:02 *Millimeter-wave communication and sensor systems : transceiver design and technological requirements*
J. Wenger, Daimler-Benz Research Center, Ulm, Germany ; H. Meinel, Daimler-Benz Aerospace AG, Ulm, Germany

L04:03 *Planar leaky-wave antennas for mobile communication systems*
E. Schmidhammer, J. Detlefsen, TU München, Lehrstuhl für Hochfrequenztechnik, München, Germany

L04:04 *New SAW-convoler techniques for demodulation in high-speed spread-spectrum communications*
M. Hikita, C. Takubo, K. Asai, Central Research Lab., Hitachi Ltd., Kokubunji-shi, Tokyo, Japan

L04:05 *Implementation of binary orthogonal keying schemes using SAW chirp filters for robust wireless LAN applications*
A. Springer, W. Gugler, M. Huemer, R. Weigel, U. of Linz, Inst. for Communications and Information Engineering, Linz, Austria

L04:06 *New possibilities of SAW devices for passive remote sensing and identification*
M. Goroll, W. Buff, T. Vandahl, M. Rusko, J. Ehrenpfordt, St. Klett, TU Illmeneau, Inst. of Solid State Electronics, Ilmenau, Germany

L04:07 *Techniques for interrogation of passive SAW sensors*
A. Pohl, TU Vienna, Applied Electronics Laboratory, Vienna, Austria

Session M03
Tuesday, July 14 PM
Near Field 2 : Near-Field Optics
Workshop on Complex Media and Measurement Techniques

Organisers : H. Cory, J. J. Greffet
Chairs : J.J. Greffet, U.C. Fisher

M03:01 *Optical transmission lines-comparison between the optical and the microwave frequency ranges*
I.V. Shvets, R. Kantor, Physics Dpt, Trinity College, Dublin 2, Ireland ; C. Durkan, Dpt of Engineering, Cambridge U., Cambridge, UK

M03:02 *Near field optical imaging of light propagation in waveguide devices*
J. M. Moison, F. Mignard, F. Barthe, S. Bourzeix, France Telecom, CNET/DTD Laboratoire de Bagneux, Bagneux, France

M03:03 *Polarisation resolved measurements of mode structures of vertical cavity survace mitting laser diodes investigated with a SNOM*
O. Hollricher, M. Fischer, R. Brunner, P. Spitzig, O. Marti, U. Ulm, Abt. Experimentelle Physik, Ulm, Germany

M03:04 *Reflection-mode near-field optical microscopy using a scattering probe tip*
G. Wurtz, R. Bachelot, P. M. Adam, O. Bergossi, J.-L. Bijens, S. Benrezzak, R. Laddada, H. Wioland, R. Deturche, P. Royer, Laboratoire de Nanotechnologie et d'Instrumentation Optique, U. de Technologie de Troyes, Troyes, France

M03:05 *Are the illumination and collection modes of the scanning near-field optical microscope fundamentally different ?*
E.R. Mendez, Division de Fisica Aplicada, CICESE, Baja California, Mexico ; J.-J. Carminiati, Laboratoire d'Energétique, Moléculaire et Macroscopique, Château-Malabry, France

M03:06 *Role of the probe on near field detection*
F. de Fornel, L. Salomon, Laboratoire de Physique de l'U. de Bourgogne, Equipe Optique de Champ Proche, Dijon, France

M03:07 *A model for the spatial compression of light to 10 nm dimensions in the tetrahedral tip as a basis for its function as a probe for scanning near-field optical*
U. C. Fisher, Physikalisches Inst., Wesfälische Wilhelms U., Münster

Session A04
Wednesday, July 15 AM
Monte Carlo Methods for Propagation and Scattering in Natural Media
Organiser : P. Bruscaglioni
Chair : P. Bruscaglioni

A04:01 *An overview of monte carlo methods for microwave satellite data simulation*
L. Roberti, Dip. di Elettronica, Politecnico di Torino, Torino, Italy

A04:02 *The stochastic process of transport of light through the atmosphere and variance reduction Monte Carlo simulation of polarized multiple scattering lidar returns*
U. G. Oppel, Mathematisches Inst. der Ludwig-Maximilians-U., München, Germany

A04:03 *Multiple scattering effect for spaceborne lidar*
C. Flesia, A. Starkov, Groupe de Physique Appliquée, U. de Genève, Genève, Switzerland

A04:04 *Raman lidar and multiple Mie scattering*
M. Gai, Ph. I. - Physical Investigations, Florence, Italy ; P.Buscaglioni, A. Ismaelli, Dept.of Physics, University of Florence, Italy

Session A05
Wednesday, July 15 AM
Surface Scattering Theory
Organiser : M. Saillard
Chair : J. A. De Santo

A05:01 *Study of scattering from rough multilayers - applications to the design of light absorbers*
H. Giovannini, C. Amra, Laboratoire d'Optique des Surfaces et des Couches Minces Ecole Nationale Supérieure de Physique de Marseille, Marseille, France

A05:02 *Coupled volume and surface scattering by random systems*
J.-J. Greffet, O. Calvo, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France ; P. Mareschal, Dassault-Aviation, Saint-Cloud, France ; A. Sentenac, Laboratoire d'Optique des Surfaces et des Couches Minces, ENSPM, U. de Saint-Jérôme, Marseille, France ; M. Saillard, Laboratoire d'Optique Electromagnétique, U. de Saint-Jérôme, Marseille, France

A05:03 *Exact computation of a 2-D volume and suface scattering problem*
P. Mareschal, Dassault-Aviation DTA/EM, Saint Cloud, France

A05:04 *Scattering computations for a perfectly reflecting grating*
J. A. DeSanto, Dpt of Mathematical and Computer Sci. Colorado School of Mines, Golden, USA

A05:05 *Influence of dielectric constant and losses on electromagnetic scattering of a fractal profile*
C. Ruiz, E. Bachelier, P. Borderies, I. Chenerie, ONERA-CERT, Toulouse, France

A05:06 *Diffusion of electromagnetic waves from rough inhomogeneous films. Study of the coupling between surface and volume scattering*
A. Sentenac, Laboratoire d'Optique des Surfaces et des Couches Minces, ENSPM, U. de Saint-Jérôme, Marseille, France ; H. Giovannini, Laboratoire d'Optique des Surfaces et des Couches Minces Ecole Nationale Supérieure de Physique de Marseille, Marseille, France ; M. Saillard, Laboratoire d'Optique Electromagnétique, U. de Saint-Jérôme, Marseille, France

A05:07 *Electromagnetic wave localization in disordered finite or infinite media : analysis of the localization criterion*
G. Berginc, C. Ordenovic, Thomson CSF Optronique, Guyancourt, France ; C. Bourrely, B. Torresani, CPT, CNRS-Luminy, Marseille, France

Session B04
Wednesday, July 15 AM
Non Linear Inversion : Algorithms and Applications
Organiser : R. Pierri
Chairs : R. Pierri, O. M. Bucci

B04:01 *Image reconstruction from TE scattering data using strong permittivity fluctuation theory*
W. C. Chew, J. L. Ma, C. C. Lu, J. M. Song, Center for Computational Electromagnetics, Electromagnetics Laboratory, Dpt. of Electrical and Computer Engineering, U. of Illinois, Urbana, USA

B04:02 *High resolution processing algorithms for near field object detection : performance bounds and sensitivity analyses*
A. Sahin, E.L. Miller, Center for Electromagnetic Research, Northeastern, U., Boston, USA

B04:03 *Some uses (and abuses) of reciprocity in wavefield inversion*
M. Oristaglio, T.Habashy, Schlumberger-Doll Research, Ridgefield, USA

B04:04 *Nonlinearity and multimodality in inverse problems*
J. Scales, Dpt of Geophysics, Colorado School of Mines, Golden, USA

B04:05 *Reconstruction of underground tunnel by using FDTD and the genetic algorithm*
H.-K. Choi, S.-K. Park, J.-W. Ra, Dpt of Electrical Eng., Korea Advanced Inst. of Sci. And Tech., Taejon, Korea

B04:06 *Inverse scattering for 2-D buried obstacles: comparison of the TM- and TE-cases*
M. Lambert, D.Lesselier, B. Duchene, Laboratoire des Signaux et Systemes, Gif-sur-Yvette, France

B04:07 *A formal compensation of sensor related interactions for quantitative microwave tomography*
J.Ch. Bolomey, N.Joachimowicz, O.Franza, Laboratoire des Signaux et Systemes, Gif-sur-Yvette, France

B04:08 *3-D joint D.C. resistivity and seismic refraction tomography*
J. Zhang, Blackhawk Geometrics Inc., Golden, USA

B04:09 *Optimization approach to reconstructing 2D dielectric objects*
A. Litman, A. Tijhuis, Faculty of Electrical Engineering, Eindhoven U. of Technology, Eindhoven, The Netherlands ; K. Belkebir, Faculté des Sci. et Techniques de St. Jérome, Laboratoire d'Optique Electromagnitique, Marseille, France

B04:10 *Quadratic and quadratic iterated approaches to inverse scattering*
R. Pierri, G. Leone, A. Brancaccio, R. Persico, Dip. Ing. dell'Informazione, Seconda Università di Napoli, Aversa, Italy

Session C04
Wednesday, July 15 AM
Selected Topics in Computational Electromagnetics
Organiser : J. T. Aberle
Chairs : Frank L. Whetten, David B. Davidson

C04:01 *FDTD prediction of penetration into an airliner*
K. J. Moeller, National Aeronautics and Space Administration Langley Research Center, Hampton, USA.

C04:02 *On the behavior of electromagnetic fields in the anisotropic PML*
J. T. Aberle, Telecommunication Research Center, Arizona State U., Tempe, Arizona, U.S.A ; D. M. Kokotoff, Dpt of Communication and Electronic Engineering, Royale Melbourne Inst. of Technology, Melbourne, Australia

C04:03 *A generalisation of the PML with application to biaxial materials*
A. Mitchell, D. M. Kokoff, M. W. Austin, Royal Melbourne Inst. of Technology Dpt of Communication and Electronic Engineering, Melbourne, Australia

C04:04 *Recent progress on moment method / UTD hybridization*
I. P. Theron, D.B. Davidson, Dpt. Electrical and Electronic Engineering, U. of Stellenbosch, Stellenbosch, South Africa ; U. Jakobus, Inst. Für Hochfrequenztechnik, U. Stuttgart, Germany ; F. J.C. Meyer, Electromagnetic Software and Systems, Stellenbosch

C04:05 *On the use of attachment modes in the analysis of printed antennas*
D. M. Kokotoff, R. B.Waterhouse, Dpt of Communication and Electronic Engineering Royal Melbourne Inst. of Technology, Melbourne, Australia ; J. T. Aberle, Telecommunications Research Center, Arizona State U., Tempe, USA

C04:06 *Teaching computational methods to undergraduates*
F. L. Whetten, Electrical Engineering Dpt., Embry-Riddle U., Prescott, AZ, USA

M06:07 *Combined eigenvalue and circuit modelling of radio frequency heating systems*
R. I. Neophytou, A. C. Metaxas, Electricity Utilisation Group, Engineering dpt., Cambridge U., Cambridge, UK

Session D04
Wednesday, July 15 AM
Numerical Techniques
Organiser : T. K. Sarkar
Chairs : Magdalena Salazar Palma, Andreas Cangellaris

D04:01 *Adaptive multiscale moment method for analyzing EM scattering from perfectly conducting objects*
C. Su, T. K. Sarkar, Dpt of ECE, Syracuse U., USA ; M. Salazar, Polytechnique U. of Madrid, Spain

D04:02 *Polynomials bases and convergence in the method of moment*
G. Morvan, M. Ney, Laboratoire d'Electronique et Systèmes de Télécomunication (LEST) E.N.S.T. B, Brest, France

D04:03 *Passive discretization and reduced-order modeling of distributed electromagnetic systems*
A. C. Cangellaris, Dpt of Electrical and Computer Engineering, U. of Illinois at Urbana-Champaign, Urbana, USA ; L. Zhao, Dpt of Electrical and Computer Engineering, U. of Arizona, Tuscon, USA

D04:04 *Radiation/scattering from 3D conducting/dielectric structures utilizing the finite element method*
M. Salazar-Palma, L. E. Garcia-Castillo, Polytechnique U. of Madrid, Madrid, Spain ; T. K. Sarkar, Syracuse U., USA

D04:05 *On the condition number of impedance matrix by orthogonal wavelet transformation*
C. Su, T. K. Sarkar, Dpt of ECE, Syracuse U., USA ; M. Salazar, Polytechnique U. of Madrid, Spain

D04:06 *Low frequency electromagnetic scattering from conducting structures utilizing triangular patch modelling*
J. L. Roumiguieres, LASMEA, U. Blaise Pascal, Clermont Ferrand, France ; S. M. Rao, Auburn U., Alabama ; T. K. Sarkar, Syracuse U., New York, USA

D04:07 *Fourth order accurate compact implicit method for the Maxwell equations*
E. Turkel, A. Yefet, School of Mathematical Sciences, Sackler Faculty of Exact Sciences, Tel-Aviv U., Israel

Session E04
Wednesday, July 15 AM
Coplanar Techniques
Organiser : G. Alquié
Chair : G. Alquié

E04:01 *A Simple analytical model for the coplanar waveguide open-end discontinuity*
A. Bessemoulin, C. Algani, G. Alquié, V. Fouad Hanna, Laboratoire des Instruments et Systèmes - MEMO, U. P. et M. Curie, Paris, France

E04:02 *The uniplar technology, a very convenient way to built high performance passive microwave devices*
T. Le Nadan, K. Hettak, J. P. Coupez, E. Rius, C. Person S. Toutain, Laboratoire d'Electronique et des Systèmes de Télécommunications LEST-UMR ENST de Bretagne, Brest, France

E04:03 *Simple manifacturable rectangular waveguide to coplanar line transitions*
W. Simon, J. Borkes, I. Wolff, Inst. of Mobile and Satellite Communication Techniques, Kamp-Lintfort, Germany

E04:04 *Inductance compuattion for CPW discontinuities with finite metallization thickness by hybrid finite element method*
C.-W. Chiu, Dpt. of Electronics Engineering, Minghsin Inst. of Technology, Hsinchu, Taiwan

Session E05
Wednesday, July 15 AM
Developments in the Aera of the Calculations of Guided Waves and Propagation

E05:01 *Object-oriented non-linear analysis in frequency-domain for advanced non-linear device modelling*
D. Schreurs, B. Nauwelaers, K.U.Leuven, Div. ESAT-TELEMIC, Heverlee, Belgium ; J. Rutkowski, A. Beyer, Gerhard-Mercator-U. Duisburg, Dpt of Electrical Engineering, Duisburg, Germany

E05:02 *Using a structure description language for electromagnetic field simulation*
O. Pertz, A. Riza Kozlu, A. Beyer, Gerhard Mercator U. Duisburg Dpt of Electromagnetic Theory and Engineering, Duisburg, Germany

E05:03 *Investigation of electromagnetic shock waves structure in anisotropic ferromagnets with preferred direction*
G. Natalia, Inst. for Problems in Mech., Russian Acadamy of Sci., Moscow, Russia ; A. G. Kulikovskii, Steklov Math. Inst., Russian Academy of Sci., Moscow, Russia

E05:04 *Non-parametric models of nonlinear transmission lines*
V. R. Snournitsin, Novosibirsk State Technical U., Novosibirsk, Russia

E05:05 *On the generalized theory of waveguide mode excitation*
E. O. Kamenetskii, Dpt. of Electrical Engineering-Physical Electronics, Faculty of Engineering,, Tel Aviv U., Tel Aviv, Israel

Session E06
Wednesday, July 15 AM
Packaging
Organiser : O. Picon
Chair : O. Picon

E06:01 *Tape automated bonding package for high speed IC's*
M. Bedouani, G. Dehaine, Bull S.A, Les Clayes sous Bois, France

E06:02 *Quad flat package assembly performances on radio frequency range*
F. Ndagijimana, J. Chilo, LEMO/PFT-CEM, Grenoble, France

E06:03 *New results on electromagnetic field coupling for mm-wave interconnects*
J. Kassner, W. Menzel, S. Waidmann, U. of Ulm, Microwave Techniques, Ulm, Germany

E06:04 *Electromagnetic modelization of millimeter wave interconnections*
A. Chousseaud, F. Jecko, IRCOM, Limoges, France ; M. Lalande-Guionie, IRCOM, Brive, France ; P. Etourneau, Thomson-CSF-RCC, Colombes, France

E06:05 *Equivalent circuit of flip-chip interconnect*
F. Gagnet, A. Mebarki, H. Baudrand, ENSEEIHT, Groupe de Modélisation Microonde, Toulouse, France ; D. Bajon, SUPAERO, Laboratoire Electronique, Toulouse, France ; C. Tronche, ALCATEL TELECOM, Toulouse, France

Session F04
Wednesday, July 15 AM
Array Antennas

F04:01 *A serially fed dual-polarized array for base-station applications*
G. Biffi Gentili, M. Leoncini, C. Salvador, Dpt di Ingegneria Electronica, U. di Firenze, Firenze, Italy

F04:02 *"Aperture reduction" : using aperture field eigenmodes to analyze finite arrays of aperture coupled antennas*
M. Vrancken, G. A. E. Vandenbosch, Katholieke U. Leuven, Faculty of Engineering, Dpt of Electrical Engineering, Division ESAT-TELEMIC, Leuven (Heverlee), Belgium

F04:03 *Multifrequency conformal printed array*
F. Sauvat, E. Germond, DGA/DCE/CTSN/SN/TE, Toulon, France

F04:04 *Ring array synthesis using efficient techniques of sampling circular aperture distributions*
Said E. El-Khamy, Senior Member IEEE, Abd-El-Fatah A. Abou-Hashem, Dpt of Electrical Engineering, Faculty of Engineering, Alexandria U., Alexandria, Egypt

F04:05 *Analysis of an active focal array fed reflector. Comparison with an active direct radiating array*
H. Legay, ALCATEL ESPACE, Toulouse, France

F04:06 *Active broadband array using a surface mounted monopole concept*
J. M. Floc'h, L. Desclos, INSA / LCST, UPRES-A 6075 du CNRS " Structures Rayonnantes", Rennes, France

F04:07 *Rigorous analysis of transient radiation mechanism of small multi-sector monopole Yagi-Uda array antenna using FDTD method*
T. Maruyama, K. Uehara, T. Hori, K. Kagoshima, NTT Wireless Systems Laboratories, Japan

F04:08 *Spatial filtering technique for radar cross section control of an array antenna*
H. Steyskal, Concord, MA, USA ; B. Thors, L. Josefsson, Ericsson Microwave Systems AB, Sweden

F04:09 *Fractal Arrays and Lacunarity*
Dwight L. Jaggard, Complex Media Laboratory, Moore School of Electrical Engineering, School of Engineering and Applied Science, Philadelphia, U.S.A.; A.D. Jaggard, Dpt. of Mathematics, Wheaton College, Wheaton, USA

F04:10 *Electrodynamic analysis of dipole lattices*
V.V Artemiev, Y. Y. Radtsig, S.I Eminov, Novgorod State U. by Y. Mudry, Dpt of the Theoretical and Special Physics, St Petersburg, Russia

Session G07
Wednesday, July 15 AM
Microwave Components II

G07:01 *An adaptive multigrid method for solving poissons-equation applied to a coplanar meander line*
R. Kulke, Th. Sporkmann, I. Wolff, Inst. of Mobile and Satellite Communication Techniques (IMST), Kamp-Lintfort, Germany

G07:02 *Multimode equivalent network representation for multiple arbitrarily shaped posts in H-Plane waveguide*
A. Valero, M. Ferrando, Dpt. Comunicaciones ETSI Telecomunicacion U. Politecnica de Valencia, Valencia Spain

G07:03 *Modeling of septum polarizers in ridged circular waveguides*
A. Najid, H. Baudrand, ENSEEIHT. Laboratoire d'Electronique, Toulouse, France

G07:04 *Circularly bent slab waveguides bounded by electric walls*
K. Ono, M. Mirianashvili, Y. Tahara, M. Hotta, Dpt of Electrical and Electronic Engineering Dpt Faculty of Engineering Ehime U., Matsuyama, Japan

G07:05 *TM-polarized nonlinear non-Kerr-like guided waves in asymmetrical dielectric slab*
N. Y. Grigorieva, K. A. Barsukov, Dpt. of Physics, Electrotechnical U., St.-Petersburg, Russia

G07:06 *Electrodynamical Characteristics of Confocal Open Superconducting Resonators*
V. Kravchenko, A. B. Kazarov, Inst. of Radio Engineering and Electronics of the Russian Academy of Sci., Moscow, Russia

Session G08
Wednesday, July 15 AM
Photonic Band Structures

Organisers : D. Maystre, G. Tayeb
Chairs : D. Maystre, G. Tayeb

G08:01 *A new FDTD approach to study PBG structures : application to parabolic reflectors*
M. Thèvenot, A. Reineix, M. S. Denis, B. Jecko, IRCOM - UMR CNRS n° 6615 - Equipe Electromagnétisme, Faculté des Sci., Limoges, France

G08:02 *Electromagnetic scattering solution of a finite 2-D dielectric photonic band gap lattice*
D. R. Smith, N. Kroll, S. Schultz, Dpt of Physics, U. of California, California, USA ; O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics Swiww Federal Inst. of Technology, Zurich, Switzerland

G08:03 *Channel drop filters in photonic crystals*
S. Fan, P. R. Villeneuve, J. D. Joannopoulos, Dpt of Physics, Massachusetts Inst. of Technology, Cambridge, MA ; H. A. Haus, Dpt of Electrical Engineering and Computer Sci. Massachusetts Inst. of Technology, Cambridge, MA

G08:04 *Experimental and theoretical comparison of photonic crystals transmission properties*
P. Sabouroux, G. Tayeb, D. Maystre, G. Kaul, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France

G08:05 *Photonic band structure and circuit models for perfectly conducting capacitive grids*
R. C. McPhedran, N. A. Nicorovici, School of Physics, Sydney, Australia ; L. C. Botten, School of Mathematical Sci., U. of Technology, Sydney, Australia

G08:06 *Parametric analysis of metallic photonic band-gap materials*
G. Poilasne, Ph. Pouliguen, C. Terret, LSR/LAT UPRES-A CNRS 6075, U. de Rennes 1, Rennes, France ; L. Desclos, M. Madihian, NEC Corporation, C & C Laboratories, Network Laboratories, Kanagawa, Japan

G08:07 *Band gap properties of 2D and 3D metallic photonic crystals*
G. Tayeb, G. Guida, D. Maystre, P. Vincent, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France

G08:08 *Defect states in metallic photonic band gap crystals*
M.M Sigalas, C.M Soukoulis, W. Y. Leung, S. Gupta, G. Tuttle, R. Biswas, K. M. Ho, Microelectronics Research Center, Ames Laboratory USDOE, Dpt of Physics and Astronomy, Iowa State U., Iowa

G08:09 *Theorical and experimental study of metallic photonic band-gap materials : a multiple scattering modeling*
F. Pessan, E. Chung, G. Ruffé, V. Vignéras-Lefebvre, J. P. Parneix, Laboratoire de Physique des Interactions Ondes-Matière (PIOM) CNRS, UMR 5501, Talence, France

G08:10 *Localized modes in two-dimensional triangular photonic crystal*
V. Kuzmiak, Inst. of radio Engineering and Electronics, Czech Academy of Sci., Czech Republic

Session H04
Wednesday, July 15 AM
Recent Advances on Complex Materials and Related Applications
Workshop on Complex Media and Measurement Techniques

Organiser: L. Vegni
Chairs: L. Vegni, J.P. Parneix

H04:01 *"Angular window" of propagation in wire media*
C. A. Moses, N. Engheta, Moore School of ElectricalEngineering, U. of Pennsylvania, Pennsylvania, USA

H04:02 *Radiative features of gyrotropic structures: theory and practice*
P. Baccarelli, C. Di Nallo, F. Frezza, A. Galli, P.Lampariello, "La Sapienza" U. of Rome, Dpt of Electronic Engineering,Roma, Italy

H04:03 *Microstrip resonator on the chiroferrite substrate*
I. S. Nefedov, Inst. of Radio Engineering and Electronics,Russian Academy of Sci., Saratov, Russia

H04:04 *Leaky modes in chiral rib waveguides*
A. L. Topa, C. R. Paiva, A. M. Barbosa, Dpt de EngenhariaElectrotecnica e de Computadores, Inst. Superior Tecnico, Technical U.of Lisbon, Lisboa, Portugal

H04:05 *On the measurement of material parameters of a general bianisotropic medium*
G. N. Borzdov, Dpt of Theoretical Physics, ByelorussianState U., Minsk Belarus

H04:06 *On fundamental symmetry aspects in electrodynamics of microwave bianisotropic composites*
E.O. Kamenetskii, Dpt. of Electrical Engineering -Physical Electronics, Faculty of Engineering, Tel Aviv Univ., TelAviv, Israel

H04:07 *Artificial magnetism of composites on the base of dielectric resonator inclusions at microwaves*
V. N. Semenenko, V. A. Chistyaev, D. E. Ryabov,Scientific Center for Applied Problems in Electrodynamics (SCAPE) IVTAN,Russian Academy of Sci., Moscow, Russia

H04:08 *Finite element solution of the electromagnetic vector wave equation for bianisotropic media*
A. Toscano, L .Vegni, Dpt of Electronic Engineering, ThirdU. of Rome, Roma, Italy

H04:09 *Nonlinear Faraday and Kerr rotation in magnetic media*
N. N. Dadoenkova, I. L. Lyubchanskii, DonetskPhysico-Technical Inst. of the National Academy of Sci. of Ukraine,Donetsk, Ukraine; A. D. Petrenko, Donetsk State Technical U., Donetsk,Ukraine

H04:10 *Transverse propagation of plane electromagnetic waves in a gyrotropic uniaxial omega medium*
V. V. Fisanov, Siberian Physical and Technical Inst.,Tomsk State U., Tomsk, Russia; D. A. Marakasov, Dpt of Radiophysics,Tomsk State U., Tomsk, Russia

J. I. P. R. 4 - Session I04
Wednesday, July 15, AM 08:40-12:20
Ultrawideband (VHF - UHF) Polarimetry
Organiser : E. Pottier
Chairs : S.R. Cloude and L. Ulander

I04:01 *Current and future development and operation of the FOA-CARABAS VHF-SAR system*
(Overview) A. Gustavsson, H. Hellsten, L. Ulander, FOA, Linköping, Sweden.

I04:02 *Multifrequency polarimetric radar system in the low VHF band*
A. David, C. Brousseau, Y. Louet, A. Bourdillon, Laboratoire Structures Rayonnantes et Radiocommunications, Université de Rennes 1, Rennes, France.

I04:03 *Polarimetric RCS signatures of commercial aircraft in the HF band*
A. David, C. Brousseau, A. Bourdillon, Laboratoire Structures Rayonnantes et Radiocommunications, Université de Rennes I, Rennes, France.

I04:04 *Advances in RP-UWB-POL-D-InSAR technology*
(Overview) W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA

I04:05 *Aerial target identification with a polarimetric V.H.F radar*
J. Berger, T. Landeau, E. Pottier, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

I04:06 *Some comments on parameter interpretation in radar target polarimetry*
J. R. Huynen, P. Q. Research, Los Altos Hills, California, USA

I04:07 *Ionospheric effects on spaceborne VHF SAR performance*
P. Hoogeboom, F. Rijckenberg, TNO, Schevenigen, The Netherlands

I04:08 *Influence of polarization on the estimation of high resolution methods*
P. Charge, Y. Wang, J.Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

Session J08
Wednesday, July 15 AM
Forest Observations by Radars : The Eufora Project

Organiser : T. Le Toan
Chairs : T. Le Toan, S. Quegan

J08:01 *Radar results from EUROFA remote sensing campaign of boreal forest in Finland*
M. Hallikainen, J. Hyyppa, J. Koskinen, J. Uusitalo, T.Tares, M. Makynen, H. Hyyppa, J. Poulianen, HUT , Espoo, Finland.

J08:02 *Preliminary analysis of HUTSCAT data over Austrian pine plantations in relation with tree parameters and architecture*
A. Beaudouin, J. M. Martinez, T. Castel, LCT, Montpellier, France ; M. Hallikainen, M. Makynen, J. Uusitalo, HUT, Espoo, Finland ; N. Floury, CESBIO, Toulouse, France.

J08:03 *EUROFA data collection with the CARABAS-II VHF-band SAR*
L. M. H. Ulander , B. Flood, P.O. Frôlind, A. Gustavsson, H. Hellsten, T. Jonsson, B. Larsson, and G. Stenstrôm., FOA, Linköping, Sweden.

J08:04 *Forest structure from laser profiling*
A. T. Manninen, M. S. Rantasuo, VTT Automation, Espoo, Finland

J08:05 *Radar backscatter modelling of forests using a refined tree architecture model*
N. Floury, T. Le Toan, CESBIO, Toulouse, France;Y. Caraglio, CIRAD, Montpellier, France;A. Beaudoin, LCT, Montpellier, France.

J08:06 *A comparison of DEM and INSAR based pixel-size normalization methods for SAR data over hilly terrain*
U. Wegmüller, Gamma A.G., Muri, Switzerland and A. Beaudoin, LCT, Montpellier, France

J08:07 *Multidate ERS tandem data acquired over hilly forested terrain : influence of biophysical and meteorological factors*
J.M. Martinez, A. Beaudoin, LCT, Montpellier, France;.U Wegmüller, T. Strozzi, Gamma A.G., Muri, Switzerland; T. Le Toan, CESBIO, Toulouse, France.

J08:08 *Change detection techniques applied to forest monitoring by ERS SAR*
S. Quegan, J. J. Yu, SCEOS, Sheffield,U K ; T. Le Toan, F. Ribbes, J. Bruniquel,, CESBIO, Toulouse, France

Session K04
Wednesday, July 15 AM
SAR Interferometry : Signal Procesing and Phase Unwrapping

Organiser : R. Bamler
Chairs : R. Bamler, H. Zebker

K04:01 *Phase unwrapping algorithms for radar interferometry: residue-cut, least-squares, and synthesis algorithms*
H. A. Zebker, Dpt of Geophysics and Electrical Engineering Stanford U., Stanford, UK

K04:02 *Global minimization methods for interferometric phase unwrapping*
R. Bamler, M. Eineder, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen, Wessling, Germany

K04:03 *Signal processing as a tool for SAR and ISAR image interpretation*
H. Maître, E. Trouvé, J. M. Nicolas, F. Tupin, Dpt IMA, ENST, Paris, France

K04:04 *Bayesian height estimation from InSAR using a fractal prior*
M. Datcu, G. Palubinskas, Deutsches Zentrum für Luft- und Raumfahrt (DLR) e.V. Oberpfaffenhofen, Weßling, Germany

K04:05 *Evaluation of bayesian methods for interferometric SAR phase unwrapping*
L. Guerriero, M. T. Chiaradia, G. Nico, A. Refice, INFM - Dipartimento Interateneo di Fisica, Bari, Italy ; G. Pasquariello, G. Satalino, S.tramaglia, N. Veneziani, IESI, Bari, Italy

K04:06 *SAR RAW signal simulation of urban areas*
G. Franceschetti, A. Iodice, D. Riccio, U. di Napoli Federico II, Dpt di Ingegneria Elettronica, Napoli, Italy ; G. Franceschetti, Isti. di Ricerca per l'Elettromagnetismo e i Componeneti Electtronici, Napoli, Italy

K04:07 *Determination of city models using high resolution InSAR data*
J. Moreira, A. Keim, A. Schmiede, Aero-Sensing Radarsysteme GmbH c/o DLR Research Centre, Oberpfaffenhofen, Germany ; F. Holecz, P. Pasquali, U. of Zurich-Irchel, Switzerland

K04:08 *Error analysis for repeat-pass SAR interferometry: applications for deformation analysis*
R. Hanssen, Delft Inst. for Earth-Oriented Space Research Delft U. of Technology, JA Delft, the Netherlands

K04;08 *Phase unwrapping: measures of success*
M. D. Pritt, Lockheed Martin Corp, Maryland, USA

Session L05
Wednesday, July 15 AM
Local Area Network

L05:01 *Key elements of IMT-2000*
N. Padovan, M. J. Ryan, L.C. Godara, School of Electrical Engineering U. College, U. of New South Wales, Australian Defence Force Academy, Canberran Australia

L05:02 *A teletraffic model of third generation mobile communication systems*
N. Padovan, L.C. Godara, M. J. Ryan, School of Electrical Engineering U. College, U. of New South Wales, Australian Defence Force Academy, Canberran Australia

L05:03 *Adjacent channel power ratio simulation for wireless LAN power amplifiers*
K. H. Koo, H. S. Park, S. H. Lee, Electronics Engineering Dpt, U. of Inchon, Korea . B. K. Kim, J. H. Park, Radio Technology Section, Electronics Technology Research Inst., Taejon, Korea

L05:04 *High speed transmission for wireless personal*
K. B. Letaief, R. D. Murch, Electrical & Electronic Engineering Dpt., The Hong Kong U. of Sci. & Technology

L05:05 *Higher order statistics based multi-user canceller for electromagnetically dense communications environments*
I. Morns, S Sali, Dpt of Electrical and Electronic Engineering Merz Court U. of Newcastle upon Tyne, UK

Session M04
Wednesday, July 15 AM
Near Field 3 : Field Measurements via the Modulated Scattering Technique (MST)
Workshop on Complex Media and Measurement Techniques
Organisers : J. Ch. Bolomey, F. Gardiol
Chair : F. Gardiol

M04:01 *Recent developments in MST techniques and applications : a review*
J. Ch. Bolomey, Dpt de Recherche en Electromagnétisme, Supélec, Gif sur Yvette, France

M04:02 *Separability criteria for the long-wire scattering technique*
A. Cullen, H. Griffiths, Dpt of Electronic and Electrical Engineering U. College London, London, UK

M04:03 *Measurement of near-field diffraction patterns by an optically modulated scatterer*
J. F. Nye, U. of Bristol, H. H. Wills Physics Laboratory, Bristol, UK ; W. Liang, National physical Laboratory Middlesex, UK

M04:04 *A field mapping technique with minimum intrusiveness : the optivally modulated scatterer*
W. Liang, National physical Laboratory Middlesex, UK ; J. F. Nye, U. of Bristol, H. H. Wills Physics Laboratory, Bristol, UK

M04:05 *Diagnostics of printed antennas and circuits*
J.-F. Zürcher, Ecole Polytechnique Fédérale de Lausanne, Laboratoire d'ELectromagnetisme et d'Acoustique, Lausanne, Switzerland

M04:06 *New applications of WLAN concept, modulated backscatter and spread spectrum techniques*
F. Volgyi, P. Olasz, R. Seller, I. Mojzes

M04:07 *Vector E-field probe for ISM applications*
J. M. Thiébault, G. Roussy, Laboratoire de Sectroscopie et des Techniques Microondes U. H. Poincaré Nancy I, Vandoeuvre les Nancy, France

M04:08 *Advanced modulated scattering technique : a new approach for rapid electromagnetic field measurements*
Ph. Garreau, E. Beaumont, Satimo, Les Ulis, France ; J. Ch. Bolomey, Electromagnetic Research Dpt, Supélec, Gif sur Yvette, France

Session A06
Wednesday, July 15 PM
Asymptotic High Frequency Techniques
Organiser : F. Molinet
Chairs : M. Idemen, F. Molinet

A06:01 *An inverse mixed boundary-value problem connected with one-dimensional profile inversion of a slab and half space bounded by an n-part impedance boundary*
M. Idemen, ISIK U., Büyükdere, Istanbul, Turkey

A06:02 *Floquet-wave and guided-wave diffraction for a finite phased array on a grounded dielectric slab*
S. Maci, L. Borselli, M. Grassi, A. Toccafondi, R. Tiberio, Dpt of Information Engineering, U. of Siena, Siena, Italy

A06:03 *Surface wave fields : high frequency representation and characteristics in a multilayered or periodic plane structure and in a multilayered cylindrical structure*
G. Berginc, Thomson CSF Optronique, Guyancourt, France

A06:04 *Some new results on creeping rays*
I.V. Andronov, U. of Saint-Petersburg, Russia ; D. Bouche, CEA/DAM, DCSA/MIS, Bruyères-Le-Chatel, France

A06:05 *Asymptotic currents method*
G.Leflour, V. Lange, Dassault Aviation, Saint Cloud, France ; F. Molinet, S. Tort, Mothesim, Le Plessis-Robinson, France

A06:06 *Creeping waves and whispering galery modes on convex and concave surfaces coated with a uniform layer of biisotropic or bianisotropic material*
F. Molinet, Société Mothesim, Le Plessis-Robinson, France

Session A07
Wednesday, July 15 PM
Rough Surface Scattering, Methods and Applications
Organisers : G. Berginc, Y. Beniguel
Chairs : G. Berginc, Y. Beniguel

A07:01 *Inverse scattering problem for rough surface scattering*
A. Voronovich, Cooperative Inst. for Research in Environmental Sci., U. of Colorado/NOAA, Environmental Technology Laboratory, Colorado, USA

A07:02 *Stochastic integral equation for rough surface scattering, Rrayleigh approximation*
H. Ogura, Dpt. Electronics and Information Sci., Kinki Univ, Wakayama, Japan ; Z. L. Wang, Communications Research Laboratories, Tokyo, Japan

A07:03 *Comparison of scattering from Gaussian and non-gaussian rough surface having the same spectrum*
V. I. Tatarskii and V. V. Tatarskii, U. of Colorado/CIRES and NOAA/ERL/ETL/Environmental Technology Laboratory, Colorado, USA

A07:04 *Model of VHF radio wave scattering by the sea surface at low grazing angles*
I. M. Fuks and A. G. Voronovich, Cooperative Inst. for Research in Environmental Sci. , U. of Colorado/ NOAA, Environmental Technology Laboratory, Colorado, USA.

A07:05 *Extension of small slope approximation method for 3D scattering cross section calculation of a rough convex object*
G. Berginc, Thomson CSF Optronique, Guyancourt, France ; Y. Beniguel, IEEA, Courbevoie, France

A07:06 *Direct Monte Carlo simulation of the ocean surface*
V. V. Tatarskii, U. of Colorado/CIRES and NOAA/ERL/ETL/Environmental Technology Laboratory, Colorado, USA

A07:07 *Scattering by two-dimensional dielectric random rough surfaces : numerical simulations and mesurements at various incidence angles*
S. Mainguy, CEA, CESTA, Le Barp, France

A07:08 *Study of slope variances of the sea surface*
C. Bourlier, J. Saillard, Laboratoire SEI, IRESTE, Nantes, France ; G. Berginc, DS/DFO, Thomson-CSF Optronique, Guyancourt, France

A07:09 *Experimental and theoretical investigation of coupling between surface and subsurface scattering*
L. Hespel, S. Mainguy, CEA, CESTA, Le Barp, France ; J. J. Greffet, Laboratoire d'Energétique Moléculaire et Macroscopique, Combustion, Ecole Centrale Paris, CNRS, Châtenay-Malabry, France

A07:10 *All-wave rough surface scattering theory*
A. Skriabine, Moscow State Technical U. of Civil Aviation, Moscow, Russia

A07:11 *Analysis of scattering from fractally rough surfaces by using the T-matrix method*
W. Xiande, L. Xianyun, Z. Zhongzhi, China Research Inst. of Radiowave Propagation, China

Session B05
Wednesday, July 15 PM
Microwave Imaging and Dielectric Reconstruction Techniques

Organisers : Ch. Pichot, S. Caorsi
Chairs : Ch. Pichot, S. Caorsi

B05:01 *Born approximation diffraction tomography revisited*
J.P. Lefebvre, A. Wirgin, Equipe Propagation et Imagerie, Laboratoire de Mécanique et d'Acoustique, Marseille, France

B05:02 *Microwave backscattering tomography by a projected landweber method*
E. Salerno, CNR-Isti. di Elaborazione della Informazione, Pisa, Italy

B05:03 *Rytov approximation and optimization based algorithms for solving inverse scattering with experimental data*
C. Kechibaris, K.S. Nikita, N. Uzunoglu, Dpt. of Electrical and Computer Engineering, National Technical U. of Athens, Athens, Greece

B05:04 *Imaging of strongly scattering targets using cepstral filtering*
R.V. McGahan, J.B. Morris, AFRL/SNH, Hanscom, MA, USA ; M.A. Fiddy, Dpt of Electrical and Computer Engineering, U. of Massachussets, Lowell, MA, USA

B05:05 *Inverse source and conjugate gradient algorithms for solving inverse scattering in microwave tomography*
P. Lobel, A.K. Louis, Fachbereich Mathematik, U. des Saarlandes, D-66041 Saarbruecken ; R. Ferraye, Ch. Pichot, Laboratoire d'Electronique, Antennes et Télécommunications ; L. Blanc Féraud, M. Barlaud Laboratoire d'Informatique, Signaux et Systèmes de Sophia Antipolis,U. de Nice-Sophia Antipolis/CNRS, 06560 Valbonne, France

B05:06 *Embedding approach for imaging two_dimensional dielectric objects*
A.G. Tijhuis, A. Litman, TTE Division, Section EM, Faculty of Electrical Engineering, Eindhoven U. of Technology, MB Eindhoven, The Netherlands ; J.M. Geffrin, A. Joisel, Laboratoire des Signaux et Systèmes, Gif-sur-Yvette, France

B05:07 *Multifrequency reconstruction : analysis of the 1D case*
A. de La Bourdonnaye, C. Dourthe, CERMICS, INRIA, Sophia Antipolis, France

B05:08 *Numerical experiments on a bilinear frequency hopping approach to inverse scattering*
L. Crocco, T. Isernia, V. Pascazio, R. Pierri, Dpt di Ingegneria dell'Informazione, Seconda U. di Napoli, Naples, Italy; V. Pascazio, ITTOEM, Ist. U. Navale, Napoli, Naples, Italy ; R. Pierri, Dpt di Ingegneria dell'Informazione della Seconda U. di Napoli, Naples, Italy

B05:09 *New results in microwave imaging using a genetic algorithm*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; M. Pastorino, A. Rocca, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genova, Italy

B05:10 *Inverse scattering of a multi-layered dielectric cylinder using genetic algorithm*
C-L. Li, Y-Y. Cheng, C-C. Chiu, Electrical Engineering Dpt, Tamkang U., Tamsui, Taiwan, China

Session C05
Wednesday, July 15 PM
Parallel computation

C05:01 *A numerical algorithm for the solution of 3D electromagnetic induction problems*
F. Zyserman, Dpt de Fisica - U. Nacional de La Plata, La Plata, Argentina ; J. Santos, Dpt of Mathematics, Purdue U., Indiana, USA

C05:02 *High performance computation with 128 Nodes IBM SP2*
F. Dubois, Dassault Aviation, Saint-Cloud, France

C05:03 *EM field computation on massively parallel grids using single-bit or low precision integer field representation*
N. Simons, J. Treurniet, M. Cuhaci, Computational Electromagnetics Research Scientist, Antennas and Component Integration, Directorate of Antennas and Integrated Electronics Communications Research Center, Ottawa, Ontario, Canada ; G. Bridges, Dpt of Electrical and Computer Engineering, U. of Manitoba, Canada

C05:04 *Domain decomposition with finite elements for microwave heating*
D.H. Malan, A. C. Mataxas, Electricity Utilisation Group, Dpt. of Engineering, U. of Cambridge, Cambridge, UK

C05:05 *Server-client strategies applied to computational electromagnetics*
C.J. Gillan, V. Fusco, The High Frequency Engineering Laboratory, Dpt. Electrical and Electronic Engineering, Queen's U. of Belfast, Ireland, UK

Session D05
Wednesday, July 15 PM
Asymptotic Methods

D05:01 *Presentation of a complete RCS evaluation chain : from CAD to RCS*
J.-Y. Suratteau, O. Michaux, Aérospatiale Espace et Defense, Les mureaux, France ; P. Chenin, IMAG/LMC, U. de Grenoble, Grenoble, France ; F.-R. Degott, R. Dessarce, UNIVAL S. A. , Logimath, Grenoble, France ; J.-L. Pelissier, TEUCHOS, Versailles, France

D05:02 *CAD based high-frequency monostatic RCS prediction code for complex objects : SERMAT*
M. Boutillier, M. A. Blondeel, Matra Bae Dynamics, DTM/TV/PC29, Vélizy-Villacoublay, France

D05:03 *A transfinite moment method applied to electromagnetic scattering*
P. De Doncker, U. Libre de Bruxelles, Brussels, Belgium

D05:04 *PO analysis of the scattering from dielectric flat plates*
G. Manara, Dpt of Information Engineering, U. of Pisa, Pisa, Italy ; G. Pelosi, G. Toso, Dpt of Electronic Engineering, U. of Florence, Florence, Italy

D05:05 *The use of asymptotic method for calculation of thin-walled piezoelectric transducers*
N.N. Rogacheva, Inst. for Problems in Mechanics, Russian Academy of Sci., Moscow, Russia ; E. M. Zveriaev, Moscow Inst. for Economy Communal and Engineering, Moscow, Russia

D05:06 *Method of asymptotic perturbations of fundamental solution and its application for problems of wave fields investigation*
Selin Victor I. , Obninsk, Russia

Session E07
Wednesday, July 15 PM
Global Modeling of Millimeter-Wave circuits : Part I

Organisers : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh
Chairs : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh

E07:01 *A quasi-two-dimensional HEMT Model coupled with a 3D FDTD electromagnetic simulation software for microwave CAD applications*
A. de Lustrac, Inst. d'Electronique Fondamentale, U. Paris-sud, Orsay, France ; A. Ammouche, A. Priou, Groupe d'Electromagnétisme Appliqué, IUT de Ville d'Avray, U. Paris X, Ville d'Avray, France

E07:02 *New trends in modeling electromagnetic-wave interactions with semiconductor devices and circuits*
Samir M. El-Ghazaly, Dpt. of Electrical Engineering, Telecommunications Research Center, Arizona State U., Arizona, USA

E07:03 *Integrated electromagnetic and circuit modeling of large microwave and millimeter-wave structures*
Michael B. Steer, Dpt. of Electrical and Computer Engineering, North Carolina State U., Raleigh, USA

E07:04 *Solenoid inductors for reduced interaction with silicon substrates*
El-Badawy El-Sharawy, M. Hashemi, Samir El-Ghazaly, Dpt. of Electrical Engineering, Telecommunication Research Center, Arizona State U., Arizona, USA

E07:05 *Modeling terahertz radiation from a photoconducting structure using the kirchhoff surface integral formulation*
K.A. Remley, A. Weisshaar, V.K. Tripathi, Dpt. of Electrical and Computer Engineering, Oregon State U., Oregon, USA; S.M. Goodnick, Dpt. of Electrical Engineering, Arizona State U., Arizona, USA

E07:06 *An advanced method for the simulation of nonlinear circuits*
Bernard Roth, Oliver Pertz, Adalbert Beyer, Gerhard-Mercator-U. Duisburg, Dpt. of Electrical Engineering, Duisburg, Germany

Session E08
Wednesday, July 15 PM
Global Modeling of Millimeter-Wave circuits : Part II

Organisers : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh
Chairs : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh

E08:01 *Novel photonic band-gap structures for microwave and millimeter-wave planar circuits*
Yongxi Qian, Vesna Radisic, Tatsuo Itoh, Electrical Engineering Dpt., U. of California, Los Angeles, USA

E08:02 *The use of EM simulation in the development of avionics products*
Mike Golio, James West, Lary Gatewood, Rockwell-Collins Avionics and Communications, USA

E08:03 *Global electromagnetic characterization of CPW nolinear line*
A. Ibazizen, M.F. Wong, J. Wiart, France Telecom CNET, DMR/RMC, France; V. Fouad Hanna, U. Pierre et Marie Curie (Paris 6), France; W. Tabbara, Supelec, LSS, Gif sur Yvette, France

E08:04 *Quasi-static analysis of 2-D periodic structures in VLSI interconnects*
Jong-Sik Lee, Myun-Joo Park, Byung-Sung Kim, Sangwook Nam, Applied Electromagnetics Lab., Institute of New Media and Communications, Seoul National U., Seoul, Korea

E08:05 *Full-wave electromagnetic deembedding of monolithic device of arbitrary layout geometry*
C.-K. C. Tzuang, Y.-D. Ch'iu, Inst. of Electrical Communication Engineering, National Chiao Tung U., Hsinchu, Taiwan

E08:06 *RF applications of quantum functional devices (QFD)*
V. Nair, N. El-Zein, G. Kramer, G. Maracas, H. Goronkin, Motorola Inc., Phoenix Corporate Research Laboratories, Arizona, USA

Session F05
Wednesday, July 15 PM
Active and Phased Array Antenna

Organisers : A. Roederer, G. Duret
Chairs : Bertram Arbesser- Rastburg, Hans Steyskal

F05:01 *The impact of future space-borne SAR system requirements on active phased array antenna technology*
W. P. M. N Keizer, TNO-FEL, The Hague, Netherlands

F05:02 *A novel time-domain processor for real time SAR operation*
G. Franceschetti, A. Mazzeo, N. Mazzocca, E. Napoli, A. Strollo, P. Spirito, M. Tesauro, U. di Napoli, Federico II, Dpt di Ingegneria Elettronica, Napoli, Italy ; G. Franceschetti, IRECE, Napoli, Italy ; G. Franceschetti, UCLA, Dpt of Electrical Engineering, Los Angeles, Californie, USA

F05:04 *Performance of small digital beamforming antenna*
L. Pettersson, M. Danestig, Swedish Defence Research Establishment, Linköping, Sweden

F05:05 *Current modes for microstrip array elements of comple shape*
H. Steyskal, J. S. Herd, AF Research Laboratory /SNHA, Hanscom, USA

F05:06 *Transmit - receive antenna for ICO satellite operating in S band (INMARSAT-P specification)*
B. Pinte, Y. Latouche, Alcatel Espace, Toulouse, France ; G. Piton, CNES, Toulouse, France

F05:07 *A minimax antenna array synthesis applied to optimization with random erros on the excitation coefficients*
C. Roques, P. Aime, Alcatel Espace, Dpt Antennes Spatiales, Toulouse, France ; M. Masmoudi, P. Guillaume, U. Paul Sabatier, INSA, CNRS, Toulouse, France

F05:08 *A Beam-switchable active microstrip antenna array*
Y.-H. Chou, S.-J. Chung, Dept. of Communication Eng., Nat'l Chiao Tung U., Hsinchu, Taiwan

F05:09 *A new approach to the problem of active aerials account*
V.L Danilchuk, Novgorod State U., Dpt of the Theoretical and Special Physics, Novgorod, Russia

Session G08
Wednesday, July 15 PM
Photonic Band Structures

Organisers : D. Maystre, G. Tayeb
Chairs : D. Maystre, G. Tayeb

G08:01 *A new FDTD approach to study PBG structures : application to parabolic reflectors*
M. Thèvenot, A. Reineix, M. S. Denis, B. Jecko, IRCOM - UMR CNRS n° 6615 - Equipe Electromagnétisme, Faculté des Sci., Limoges, France

G08:02 *Electromagnetic scattering solution of a finite 2-D dielectric photonic band gap lattice*
D. R. Smith, N. Kroll, S. Schultz, Dpt of Physics, U. of California, California, USA ; O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics Swiww Federal Inst. of Technology, Zurich, Switzerland

G08:03 *Channel drop filters in photonic crystals*
S. Fan, P. R. Villeneuve, J. D. Joannopoulos, Dpt of Physics, Massachusetts Inst. of Technology, Cambridge, MA ; H. A. Haus, Dpt of Electrical Engineering and Computer Sci. Massachusetts Inst. of Technology, Cambridge, MA

G08:04 *Experimental and theoretical comparison of photonic crystals transmission properties*
P. Sabouroux, G. Tayeb, D. Maystre, G. Kaul, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France

G08:05 *Photonic band structure and circuit models for perfectly conducting capacitive grids*
R. C. McPhedran, N. A. Nicorovici, School of Physics, Sydney, Australia ; L. C. Botten, School of Mathematical Sci., U. of Technology, Sydney, Australia

G08:06 *Parametric analysis of metallic photonic band-gap materials*
G. Poilasne, Ph. Pouliguen, C. Terret, LSR/LAT UPRES-A CNRS 6075, U. de Rennes 1, Rennes, France ; L. Desclos, M. Madihian, NEC Corporation, C & C Laboratories, Network Laboratories, Kanagawa, Japan

G08:07 *Band gap properties of 2D and 3D metallic photonic crystals*
G. Tayeb, G. Guida, D. Maystre, P. Vincent, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France

G08:08 *Defect states in metallic photonic band gap crystals*
M.M Sigalas, C.M Soukoulis, W. Y. Leung, S. Gupta, G. Tuttle, R. Biswas, K. M. Ho, Microelectronics Research Center, Ames Laboratory USDOE, Dpt of Physics and Astronomy, Iowa State U., Iowa, USA

G08:09 *Theorical and experimental study of metallic photonic band-gap materials : a multiple scattering modeling*
F. Pessan, E. Chung, G. Ruffé, V. Vignéras-Lefebvre, J. P. Parneix, Laboratoire de Physique des Interactions Ondes-Matière (PIOM) CNRS, UMR 5501, Talence, France

G08:10 *Localized modes in two-dimensional triangular photonic crystal*
V. Kuzmiak, Inst. of radio Engineering and Electronics, Czech Academy of Sci., Czech Republic

Session G09
Wednesday, July 15 PM
Superconducting Devices : from Gigahertz to Terahertz Technologies

Organisers : A. Kreisler, J. Sombrin
Chairs : A. Kreisler, J. Sombrin

G09:01 *Superconducting technologies for the future millimeter and submillimeter wave space applications*
P.J. Encrenaz, G. Beaudin, DEMIRM URA 336 CNRS, Observatoire de Paris, France

G09:02 *High temperature superconductor planar microwave devices*
M. Pyée, LDIM, U. Paris 6, Paris, France

G09:03 *Non-destructive characterization of high Tc superconducting films and applications*
Y. Roelens, M. Achani, N. Bourzgui, P. Tabourier, IEMN-DHS UMR 9929 CNRS, Villeneuve d'Ascq, France ; J. C. Carru, LEMCEL, U. du Littoral, Calais, France

G09:04 *Planar superconducting HTc antennas at 38 GHz*
X. Castel, M. Guilloux-Viry, A. Perrin, LCSIM UMR 6511 CNRS, U. de Rennes 1, Rennes, France ; S. Quété, K. Mahdjoubi, J. M. Floc'h, C. Terret, J. Citerne, LSR UPRES-A 6075 CNRS, U. Rennes I and INSA de Rennes, Rennes, France

G09:05 *Terahertz detection with superconducting bolometers*
A. Gaugue, E. Caristan, A. Kreisler, LGEP URA 127 CNRS, Gif-sur-Yvette, France ; D. Robbes, C. Gunther, GREYC UPRES-A 6072 CNRS, ISMRa, Caen, France ; A. Sentz, LDIM, U. Paris 6, Paris, France

G09:06 *Design of high temperature superconducting filters*
F. Rouchaud, V. Madrangeas, M. Aubourg, P. Guillon, IRCOM UMR 6615 CNRS, U. de Limoges, Limoges, France ; B. Theron, M. Maignan, ALCATEL ESPACE, Toulouse, France

G09:07 *Equivalent models for HTC superconducting microstrip discontinuities*
S. Protat, O. Picon, LSC, U. de Marne la Vallée, Noisy le Grand, France ; M. Villegas, C. Delabie, ESIEE, Noisy le Grand, France

G09:08 *Field theory investigation of the nonlinearity of microwave superconductor devices*
Y. Di, Xian Electrics Technical U., Popular Republic of China ; D. Li, Dept of Electronics, Beijing Normal U., Popular Republic of China

Session H05
Wednesday, July 15 PM
Composite Materials II
Workshop on Complex Media and Measurement Techniques
Organisers : D. Jeulin, V. Vigneras
Chairs : D.S. Mclachlan, V. Vigneras

H05:01 *Investigation of the electromagnetic properties of strongly anisotropic composites made with orientated conducting wires*
P.M. Jacquart, Dassault Aviation, DGT/DTA/MT, Saint Cloud, France

H05:02 *Ferromagnetic-based composites with high impedance and strong anisotropy*
O. Acher, A.-L. Adenot, F. Duverger, CEA Ripault, St Cloud, France

H05:03 *Planar composite materials made of randomly distributed sticks : modeling and measurement of the square impedance in the microwave range*
T. T. Nguyen, G. Mazé-Merceur, CEA CESTA, Le Barp, France

H05:04 *Measurements of universal and non-universal percolation exponents in macroscopically similar systems*
C. Chiteme, D. S. Mclachlan, Physics Dpt and Condensed Matter Research Unit, U. of the Witwatersrand, Johannesburg, South Africa

H05:05 *Optical behaviour of R.F. pulverised Au-Al2O3 thin cernet films at oblique incidence under polarized light. Thickness effect when crossing the percoltion threshold*
M. Gadenne, Laboratoire d'Optique des Solides, U. P.et M. Curie, Paris, France ; P. Gadenne, Laboratoire de Magnétisme et d'Optique, U. de Versailles, Versailles, France

H05:06 *Non - linear electrical behaviour of carbon - polymer random composites*
F. Carmona, L. Lamaignère, J.-F. Muzy, Centre de recherche Paul Pascal, Pessac, France ; A. Touboul, Laboratoire IXL, U. de Bordeaux, Talence, France

H05:07 *Enhancement of nonlinear reponse in metal-dielectric composites near a sharp quasi-static resonance*
D. J. Bergman, Inst. of Solid State Physics, Tel Aviv U., Tel Aviv, Israel

H05:08 *Analysis of the frequency behaviour of composites polymer/conducting polymer*
J. L. Miane, T. Colin, G. Ruffie, Laboratoire de Physique des Interactions Ondes-Matière, Talence, France

H05:09 *Optical absorption in simulated fractal metal films*
M. Perreau, Laboratoire de Physique théorique de la matière condensée, U. Denis Diderot, Paris, France ; S. Berthier, J. Peiro, J. Lafait, Laboratoire d'Optique des Solides, U. P.et M. Curie, Paris, France

H05:10 *Optical behaviour of R.F. sputtered Au-TiO2 thin cermet films : influence of the particles size and the gold concentration*
X. Quélin, S. Liberman, J. Sztern, P. Gadenne, Laboratoire de Magnétisme et d'Optique, U. de Versailles Saint-Quentin, Versailles, France; A. Bourdon, Laboratoire des Milieux Désordonnés et Hétérogènes, U. P. et M. Curie, Paris, France

H05:11 *Optimization of radar absorbing honeycomb by inverse method and morphological observations*
C. Druez, G.P. Piau, Aerospatiale CCR, Suresnes, France

H05:12 *Anomalous properties of inhomogeneous media in a magnetic field*
A.M.Satanin, V.V.Skuzovatkin, Nizhny Novgorod U., Nizhny Novgorod, Russia

H05:13 *Nonlinear transport in periodic structures near a metalo-insulator transition*
A.M.Satanin, C. Sub Kim, Nizhny Novgorod U., Nizhny Novgorod, Russia

J. I. P. R. 4 - Session I05
Wednesday, July 15, PM 13:40-17:20
Polarimetry In Multi-Sensor Signature Fusion

Organisers : A.J. Bedard, Jr, and W.M. Boerner
Chairs : A.J. Bedard, Jr, and H. Schimpf

I05:01 (Overview) *Recent advances in infrasonic and near infrasonic atmospheric sounding and imaging*
A.J. Bedard, Jr, NAO-ETL, Environmental Research Center, Boulder, CO, USA.

I05:02 *Infrasonic observation of earthquakes*
J.P. Mutschlecner, R. W. Whitaker, Los Alamos National Laboratory, Earth and Environmental Science Division, Los Alamos, NM, USA.

I05:03 *Recent advances in ULF / ELF polarimetry*
J. Y. Dea, NAV-SPAWAR, San Diego, CA, USA ; W.-M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago ; Chicago, IL, USA;

I05:04 *Low frequency atmospheric acoustic energy associated with severe weather velocity*
A.J. Bedard, Jr, NAO-ETL, Environmental Research Center, Boulder, CO, USA.

I05:05 (Overview) *3-Dimensional polarimetric imaging of metallic objects in snowpack using an FM-CW SAR*
T. Moriyama, Y. Yamaguchi, H. Yamada, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.

I05:06 *Automatic target recognition with a two-frequency millimeter wave SAR*
H. Schimpf, FGAN-FHP, Forschungsinstitut für Hochfrequenzphysik, Wachtberg, Germany

I05:07 *Road surface condition observed by polarization ratio using a bi-static FM-CW radar*
Y. Yamaguchi, K. Kimura, H. Yamada, K. Inomata, T. Fukae, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.

I05:08 *Object classification in traffic environment using polarimetry*
N. Appenrodt, Gerhard-Mercator-U. GH duisburg, Inst. fur Technische Informatik, Duisburg, Germany ; G. Wanielik, H. Neef, Daimler Benz AG, Ulm, Germany.

Session J05
Wednesday, July 15 PM
Dielectric Characteristics of Geophysical Media

Organiser : M. Hallikainen
Chair : M. Hallikainen

J05:01 *Dielectric properties of wet snow in the 0.1 to 37 GHz range*
M. Hallikainen, T. Vänskä, Helsinki U. of Technology, Espoo,Finland

J05:02 *A Comparison of dielectric models of dry snow*
W. Huining, Helsinki U. of Technology, Espoo, Finland

J05:03 *Microwave dielectric characterization of vegetation*
A. Franchois, Space Applications Inst., Joint Research Centre, Ispra, Italy

J05:04 *In vivo dielectric response as related to tissue structure, function and physiologic activity in selected trees*
K. C. McDonald, Jet Propulsion Laboratory, Mail Stop 300-233, Pasadena, CA, USA ; R. Zimmermann, Bayreuth Inst. for Terrestrial Ecosystem Research, U. of Bayreuth Plant Ecology II, Bayreuth, Germany

Session J06
Wednesday, July 15 PM
Microwave Remote Sensing of Crops

Organiser : P. Ferrazzoli
Chairs : P. Ferrazoli, J.-P. Wigneron

J06:01 *The relations between backscattering coefficient and biomass of small leaf and wide leaf crops*
S. Paloscia, G. Macellloni, P. Pampaloni, CNR-IROE, Firenze, Italy

J06:02 *Using Radiative Transfer models with measurements of crop structure to explain ERS signatures*
G.Cookmartin, S. Quegan, U. of Sheffield, Sheffield, UK ; P. J. Saich, R. A. Cordey, GEC-Marconi Research Centre, Great Baddow, Chelmsford, UK ; A. Sowter, National Remote Sensing Centre Limited, Farnborough, Hampshire, UK

J06:03 *Monitoring surface variables over crop fields from C-band radar data*
J. P. Wigneron, A. Olioso, INRA Bioclimatologie, Avignon, France ; P. Ferrazzoli, U. Tor Vergata, DISP, Roma, Italy

J06:04 *On the use of Radarsat and ERS SAR data for ricefields monitoring*
T. Le Toan, F. Ribbes, N. Floury, CESBIO, Toulouse, France

J06:05 *Multifrequency emission of wheat: model validation and application to parameter retrieval*
P. Ferrazzoli, L. Guerriero, U. Tor Vergata, DISP, Roma, Italy ; J. P. Wigneron, INRA Bioclimatologie, Avignon, France ; A. Chanzy, INRA Sci. du sol, Avignon, France

J06:06 *The calibrated Radarsat data for rice growth stage monitoring*
Y. Shao, X. T. Fan, C. Z. Wang, Inst. of Remote Sensing Applications, Beijing, China ; B. Brisco, R. Brown, S. Ross, Canada Canter for Remote Sensing, Ottawa, Canada ; G. Staples, Radarsat International, Canada

J06:07 *Soil moisture estimation under crops during a vegetation cycle*
A. Quesney, O. Taconet, S. Le Hégarat-Mascle, CETP/CNRS, Vélizy, France ; M. Normand, C. Loumagne, CEMAGREF, Division hydrologie, Antony, France ; J. P. Wigneron, INRA / Bioclimatologie, Montfavet, France

Session K05
Wednesday, July 15 PM
Interferometry

K05:01 *Large scale interferometric DEM and map generation using ERS tandem data*
M. Schwaebisch, J. Moreira, Aero-Sensing Radar Systems, c/o DLR Oberpfaffenhofen, Germany

K05:02 *Land subsidence mapping with ERS SAR interferometry*
U. Wegmüller, T. Strozzi, Gamma Remote Sensing, Muri BE, Switzerland ; C. Werner, Jet Propulsion Laboratory, Pasadena, CA, USA

K05:03 *Calibration of interferometric SAR system using kinematic ground GPS measurements*
A. Safaeinili, Jet Propulsion Laboratory, Mail Stop 300-235, Pasadena, CA, USA

K05:04 *Correcting motion compensation induced height errors in airborne SAR-interferometry*
R. Scheiber, Inst. für Hochfrequenztechnik Deutsches Zentrum für Luft und Raumfahrt (DLR), Wessling, Germany

K05:05 *SAR processing and interferometry software*
U.Wegmüller, T. Strozzi, C. Warner, Gamma Remote Sensing, Muri BE, Switzerland

K05:06 *An adaptive least squares phase unwrapping algorithm*
T. L. Ainsworth, J.-S. Lee, Remote Sensing Division Naval Research Laboratory, Washington, DC, USA

K05:07 *A new algorithm for fast stable phase unwrapping in SAR interferometry using Helmholtz' equation eigenfunctions and regularization procedure*
I. Lyuboshenko, H. Maître, Dpt. IMAGES, Ecole Nationale Supérieure des Télécommunications, Paris, France

K05:08 *Multilook processing of interferometric SAR imagery using discrete wavelet approximation*
L.-C. Tsai, K. S. Chen, T. Y. Liao, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan ; L.-C. Tsai, K. S. Chen, T. Y. Liao, Graduate Inst. of Space Science, Natioanl Central U.; Chung-Li, Taiwan

K05:09 *Sensitivity evaluation of the multibase interferometer*
V. P. Denisov, D. L. Antonov, Tomsk, Russia

K05:10 *Processing the results of synthetic aperture radar interferometry by the method of maximum likelihood*
V. P. Denisov, D.V. Dubinin, B. V. Iljukhin, Tomsk, Russia

K05:11 *The usage of multimeasure spheres packing of multiscale interferometries.*
V. P. Denisov, D.V. Dubinin, Tomsk, Russia

Session L06
Wednesday, July 15 PM
Wireless Sensor and Communications Techniques II
Organisers : A. Springer, R. Weigel
Chair : A. Springer

L06:01 *Hot spot analysis experiments in GSM cells*
F. Jondral, U. Karlsruhe, Institut für Nachrichtentechnik, Karlsruhe, Germany

L06:02 *Performance evaluation of smart antenna systems based on deterministic propagation*
J. E. Dietert, Inst. of High Frequency Technology, Aachen U. of Technology, Aachen, Germany

L06:03 *Capacity improvement using smart antennas*
M. Bronzel, G. Fettweis, Dresden U. of Technology, Chair for Mobile Communications Systems, Dresden, Germany

L06:04 *Site-specific propagation modeling for wireless communication systems*
K. A. Remley, A. Weisshaar, Dpt. of Electrical and Computer Engineering, Oregon State U., Corvallis, Oregon, USA

L06:05 *High resolution measurement equipment for the determination of channel impulse responses for indoor mobile communications*
G. Wölfle, A. J. Rohatschek, H. Förner, F. M. Landstorfer, Insitut für Hochfrequenztechnik, Univ. of Stuttgart, Stuttgart, Germany

L06:06 *Indoor radiowave propagation : channel sounding and parameter extraction*
P.E. Leuthold, P. Truffer, Communication Technology Laboratory, Swiss Federal Inst. of Technology, ETH Zentrum, Zurich, Switzerland

Session M05
Wednesday, July 15 PM
Near Field 4 : RF/Microwave NF Techniques
Organisers : J. Ch. Bolomey, L. Jofre
Chair : L. Jofre

M05:01 *Transient and frequency domain field measurements with an isotropic photonic sensor*
F. Gassman, Montena emc

M05:02 *Antenna analyser using the modulated scattering technique*
J.L. Blot

M05:03 *Broadband and low interaction rapid near-field setup*
D. Picard, J. Ch. Bolomey, Electromagnetic Research Dpt, Supélec, Gif sur Yvette, France ; A. Ziyyat, Lab. Electronique et Systèmes, U. Mohammed 1er Oujda, Maroc

M05:04 *Recent developments in electromagnetic diagnosis using near-field techniques*
S. Lestringuez, F. Lucas, L. Giauffret, Satimo Lot, Gramat, France ; Ph. Garreau, Satimo, Les Ulis, France ; J. Ch. Bolomey, Supelec, Electromagnetics Dpt, Gif sur Yvette

M05:05 *Plane wave synthesis technique for near-field bistatic RCS measurements*
F. Gallet, P. Baudon, G. Germain, P. Naud, CEA/CESTA, Le Barp, France ; Ph. Garreau, Satimo, Les Ulis, France ; J. Ch. Bolomey, Supelec, Service d'Electromagnétisme, Gif sur Yvette, France

M05:06 *Derivation of the far-field target R.C.S from near-field measurements*
F. Le Dorse, E. Pottier, J. Saillard, Lab. SEI/EP, IRESTE, U. of Nantes, Nantes, France

M05:07 *Applications of A-MST probe arrays to rapid diagnostic imaging*
B. Cown, J. Estrada,Satimo Acworth, GA, USA ; Ph. Garreau, E. Beaumont, Satimo, Les Ulis, France ; P. Dumon, J.M. Lopez, CNES, Centre National d'Etudes Spatiales, Toulouse, France

M05:08 *Matrix formulation for antenna diagnosis and near-field to far-field transformation*
S. Blanch, L. Jofre, Dpt. of Signal Theory and Communications, Politechnica U. of California, Barcelona, Spain

M05:09 *35m x 16m large nearfield measurement system*
M. Niwata, Toshiba Corporation Komukai Works, Kawasaki, Japan ; S. Sapmaz, NSI, Nearfield Systems Incorporated, Tokyo, Japan

M05:11 *Realization of a didactic radar*
O. Béchu, T. Tenoux, L. Bouillot, SIRADEL, Espace performance III, St Grégoire, France

Session A08
Thursday, July 16 AM
Coherent Effects in Random Media
Organiser : V. Freilikher
Chairs : V. Freilikher, H. Ogura

A08:01 *Mie scattering in a magnetic field*
B. van Tiggelen, D. Lacoste, CNRS/Laboratoire de Physique et modelisation des systèmes Condensés, U. Joseph Fourier, Magistère, Grenoble, France ; G. Rikken, A. Sparenberg, Grenoble High Magnetic Field Laboratory, Max-Planck Inst. für Festkörperforschung/CNRS, Grenoble, France

A08:02 *Time dependance of the speckle in the multiple scattering of waves in random systems*
R. Maynard, Physique et Modelisation des Milieux Condenses U. Joseph Fourier/CNRS/Magistere, Grenoble, France

A08:03 *Spectral properties of classical waves in high contrast periodic media*
A.Figotin, Dpt of Mathematics, U. of North Carolina, Charlotte, USA

A08:04 *Numerical study of band gaps generated by randomly perturbed metallic photonic crystals*
G. Guida, D. Maystre, G. Tayeb, P. Vincent, Laboratoire d'Optique, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France

A08:05 *Static phase and dynamics of microwaves in random media*
P. Sebbah, O. Legrand, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France ; A. Z. Genack, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA

A08:06 *Statistics of microwave radiation near the localization threshold*
A. Genack, M. Stoytchev, A. Chabanov, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA

A08:07 *Coexistence of ballistic transport, diffusion, and localization in surface disordered waveguides*
V. Freilikher, The Jack and Pearl Resnik Inst. of Advanced Technology, Dpt of Physics, Bar-Ilan U. Ramat-Gan, Israël ; A.A. Maradudin, Dpt of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California, Irvine, USA ; J. A. Sanchez-Gil, Inst de Estructura de la Materia, C.S.I.C., Madrid, Spain ; I. Yurkevich, School of Physics and Space Research, U. of Birmingham, Birmingham, UK

A08:08 *Disordered microwave cavities as a model for spectral correlations in the transition from diffusive to ballistic regimes*
O. Legrand, F. Mortessagne, P. Sebbah, C. Vanneste, Laboratoire de Physique de la Matière Condensée, U. de Nice- Sophia Antipolis, Nice, France

A08:09 *Scaling properties in highly anisotropic systems*
C. M. Soukoulis, E. N. Economou, I. Zambetaki, S. Katsoprinaski, Research Center of Crete, Dpt of Physics, U. of Crete, Heraklion, Crete, Greece ; C. M. Soukoulis, Q. Li, Ames Laboratory and Dpt of Physics and Astronomy, Ames, Iowa, USA

A08:10 *Can a thermal source be spatially coherent ?*
J.-J. Greffet, R. Carminati, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France

A08:11 *Scattering of two-dimensional random heterogeneous media : comparison of radiative transfer and electromagnetic numerical simulations*
J.-J. Greffet, J.-B. Thibaud, Lab. EM2C, UPR 288 CNRS, Chatenay-Malabry, France ; L. Roux, P. Mareschal, N. Vukadinovic, Dassault Aviation, Saint Cloud, France

A08:12 *Experimental study of light scattering by well characterized two-dimensional randomly rough dielectric surfaces*
M. O. Calvo, J. Greffet, Laboratoire EM2C, Ecole Centrale Paris, Châtenay-Malabry, France ; M. Josse, Commissariat à L'Energie Atomique, Centre d'Etudes Scientifiques et Techniques d'Aquitaine, Le Barp, France

A08:13 *Scattering from an object on random rough surface stochastic green function*
H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan ; T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan

A08:14 *Frequency-angular correlations of the intensity of scattered wave from a random surface*
T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan

A08:15 *Backscattering enhancement in the scattering from a cylindrical random rough metal surface*
Z. L. Wang, M. Izutsu, The Communications Research Laboratory, Koganei, Tokyo, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan

A08:16 *Near-field and far-field changes in the spectrum of light scattered from a randomly rough surface*
V. Shchegrov, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California

A08:17 *Incoherent acoustic imaging in the ocean*
M. J. Beran, Faculty of Engineering, Tel Aviv U., Ramt Aviv, Israel

A08:18 *Impurity induced local polariton states*
A.A. Lisyansky, L. I. Deych, Dpt of Physics, Queens College of City U. of New York, Flushing, NY

A08:19 *Transverse spectra in two-way wave propagation in random media*
S. Frankenthal, Faculty of Engineering, Tel Aviv Univ., Ramt Aviv, Israel

A08:20 *Dispersion relation for electromagnetic waves in a stochastically modulated dielectric superlattice*
A. R. McGurn, S. Simeonov, Dpt. of Physics, Western Michigan U., Kalamazoo, Michigan, USA ; A. A. Maradudin, Dpt of Physics and Astronomy, U. of Californie, Irvine, USA ; V. A. Ignatchenko, Yu. I. Mankov, M. V. Erementchouk, L. V. Kirensky Instit. of Physics, Kranoyarsk, Russia

A08:21 *Wave localization in random media : a path-integral approch*
G. Samelsohn, R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel

A08:22 *Modeling of high-frequency propagators in inhomogeneous background random media*
R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel

Session B06
Thursday, July 16 AM
Shape reconstruction and Object Identification
Organisers : Ch. Pichot, S. Caorsi
Chairs : M. Fiddy, A.G. Tijhuis

B06:01 *Target identification from limited backscatter field measurements*
M.A. Fiddy, Dpt of Electrical and Computer Engineering, U. of Massachussets, Lowell, MA, USA ; R.V. McGahan, J.B. Morris, AFRL/SNH, Hanscom AFB, MA, USA

B06:02 *A microwave holographic imaging technique based on the method of auxiliary sources*
R.S. Zaridze, G. Bit-Babik, Tbilissi State U., Republic of Georgia ; D. P. Economou, D.I. Kaklamani, N. Uzunoglu, Dpt. of Electrical and Computer Engineering, National Technical U. of Athens, Athens, Greece

B06:03 *Determination of the orientation of the cylindrical bodies by the use of scattering data*
E. Topsakal, Electrical and Electronics Engineering Faculty, Istanbul Technical U., Turkey

B06:04 *Reconstruction of inhomogeneous media from real electromagnetic scattering data*
F. Zirilli, Dpt di Matematica G. Castelnuovo, U. di Roma, Roma, Italy

B06:05 *Successive approximations, propagation algorithms and the inverse obstacle problem*
G. Crosta, Dpt di Scienze dell'Ambiente e del Territorio, U. degli studi di Milano, Italy

B06:06 *Convergence rates of a regularized newton method for inverse scattering problems*
T. Hohage, Inst. für Industriemathematik, Linz, Austria

B06:07 *Neural network architectures for the estimation of conductivity profiles of layered structures in eddy current nondestructive testing applications*
I.T. Rekanos, T.D. Tsiboukis, Division of Telecommunications, Dpt. of Electrical and Computer Engineering, Aristotle U. of Thessaloniki, Thessaloniki, Greece

B06:08 *A neural electromagnetic approach to object identification*
S. Caorsi, P. Gamba, Dpt of Electronics, U. of Pavia, Pavia, Italy

B06:09 *Third order statistical characteristics of the surface shape in radar remote sensing of sea surface*
M. Gilman, Inst. for Problems in Mechanics, Moscow, Russia

Session C06
Thursday, July 16 AM
Hybrid Methods in Electromagnetism
Organiser : P. F. Combes
Chairs : P. F. Combes, W. Tabbara

C06:01 *Time domain hybridation of UTD and FDTD*
H. Dillenbourg, B. Pecqueux, Centre d'Etudes de Gramat, Gramat, France ; P. Vaudon, B. Jecko, IRCOM-UMR 6615 du CNRS Equipe "Electromagnetisme" Faculte des Sci., Limoges, France

C06:02 *Analysis of wideband coupling to a cavity : a hybrid integral equation / statistical approach*
W. Tabbara, J. Lefèbvre, J. Von Hagen, Laboratoire des Signaux et Systèmes, Gif/Yvette, France ; D. Lecointe, Service Electromagnetisme, Gif/Yvette, France

C06:03 *Antenna analysis using a combonation of the finite-element method and the geometical theory of diffraction*
E. Richalot, M. F. Wong, France Télécom CNET, DMR/RMC, France ; V. Fouad-Hanna, U. P. et M. Curie, Paris, France ; H. Baudrand, Laboratoire d'Electronique - Groupe de recherche en Electromagnétisme, ENSEEIHT, France

C06:04 *Comparison of hybridization methods between MoM and asymptotics for wire antennas radiation*
S. Baudou, P. Borderies, ONERA-CERT, Toulouse, France ; S. Baudou, P. F. Combes, UPS, LGE-AD2M, Toulouse, France

C06:05 *Hybrid methods for radar coverage forecasting*
M. F. Levy, K. H. Craig, A. A. Zaporozhets, Radio Communications Research Unit, Rutherford Appleton Laboratory, Oxon, UK

C06:06 *Comparison beween a rigorous and two asymptotic methods for the calculation of the lateral surface wave in VHF propagation channel*
B. Chateau, B. Roturier, J.-M. Louis, B. Souny, Ecole Nationale de l'aviation civile, Unité de Recherches sur les Systèmes CNS, Toulouse, France

C06:07 *Diffraction of an electromagnetic wave on a target in an heterogeneneous environment application to low altitude radar detection above the sea surface*
V. Fabbro, P. F. Combes, UPS, LGE-AD2M, Toulouse, France ; V. Fabbro, N. Douchin, ONERA-CERT, Toulouse, France

Session D06
Thursday, July 16 AM
Iterative Methods in Scattering
Organiser : H. Baudrand
Chairs : H. Baudrand, F. Obelleiro

D06:01 *Iterative integral approaches to study radiation and scattering from bodies modelled by parametric surfaces*
M. F. Catedra, O. M. conde, Dpt de Ingeneria de Communicacione, U. de Cantabria, Santander, Spain

D06:02 *Iterative solutions of the MFIE for computing the electromagnetic scattering of large open-ended waveguide cavities*
F. Obelleiro, L. Landesa, Dpt Tecnoloxias das Communicacions, ETSI Telecommunicacion, U. de Vigo, Vigo. Spain

D06:03 *On the use of iterative selection of wavelet and wavelet-packet basis function in the method of moments*
Y. Leviatan, Dpt of Electrical Engineering, Technion-Israel Inst. of Technology, Haifa, Israel

D06:04 *An iterative solution of the combined field integral equation*
J.L. Rodriguez, F. Obelleiro, A. G. Pino, Dpt Tecnoloxias das Communicacions, ETSI Telecommunicacion, U. de Vigo, Vigo. Spain

D06:05 *Domain decomposition and iterative methods in electromagnetics*
M.-Faï Wong, France Telecom CNET, DMR/RMC, France ; V. Fouad Hanna, U. P. et M. Curie, Paris, France ; H. Baudrand, Laboratoire d'Electronique, ENSEEIHT, France

D06: 06 *Applications of wave concept in planar circuits*
R. Garcia, H. Baudrand, ENSEEIHT Laboratoire d'Electronique, Toulouse, France ; M. F. Wong, France Telecom CNET DMR/RMC/ISS, Issy les Moulineaux, France

D06:07 *Modeling of electromagnetic waves propagation in heterogeneous structures by using an iterative method*
V. Vigneras-Lefebvre, F. Pessan, J. P. Parneix, Laboratoire de Physique des Interactions Ondes-Matiere (PIOM), Talence, France

D06:08 *The wave concept iterative process applied to study arbitrary shaped radiating structures*
M.-F. Wong, E. Richalot, France Telecom CNET, DMR/RMC, France ; H. Baudrand, Laboratoire d'Electronique, ENSEEIHT, France ; V. Fouad Hanna, U. P. et M. Curie, Paris, France

Session E09
Thursday, July 16 AM
Domain Decomposition, Segmentation and Hybridization Methods for Modeling Microwave Structures

E09:01 *Some domain decomposition related methods in computational electromagnetics*
W.C. Chew, Center for Computational Electromagnetics, Dpt of Electrical and Computer Engineering U. of Illinois, Urbana, IL, USA

E09:02 *A Domain decomposition method Maxwell equations in the frequency domain*
J. D. Benamou, F. Collino, P. Joly, INRIA, Le Chesnay, France

E09:03 *Combined iterative subdomain methods in planar circuits*
D. Bajon, ENSAE, Toulouse, France ; H. Baudrand, R. Garcia, ENSEEIHT, Laboratoire d'Electronique, Toulouse, France ; M. F. Wong, France Telecom CNET DMR/RMC, Issy les Moulineaux, France

E09:04 *Hybrid electromagnetic characterization of microwave modules*
F. Bordereau, D. Baillargeat, S. Verdeyme, M. Aubourg, P. Guillon, IRCOM, Faculté des Sci., Limoges, France

E09:05 *Non-reflecting boundary conditions for guided waves*
Ph. Guillaume, A. Bendali, Dpt de Génie Mathématique, INSA Toulouse, France

E09:06 *Diakoptics techniques in the FDTD method*
A. Ibazizen, M. F. Wong, Z. Altman, J. Wiart, France Télécom CNET, DMR/RMC, Issy les Moulineaux, France ; V. Fouad Hanna, U. P. et M. Curie, Paris , France ; W. Tabbara, Supelec, LSS, Gif sur Yvette, France

E09:07 *Increase of the reduction factor for subgridding approach in the FDTD method*
S. Chaillou, J. Wiart, Z. Altman, Centre National d'Etude DES Télécommunications, Issy les Moulineaux ; W. Tabbara, Laboratoire Signaux et Systèmes, Supelec, LSS, Gif sur Yvette, France

Session F08
Thursday, July 16 AM
Conformal and Smart Microstrip Antennas

Organiser : K. F. Lee
Chairs : K. F. Lee, R.Q. Lee

F08:01 *Varactor diode-loaded polarization-agile antennas*
P.M. Haskins, J. S. Dahele, Dpt. of Aerospace, Power and Sensors, Cranfield U., Roay Military College of Sci., Shrivenham, Swindon, UK

F08:02 *EM field mapping issues related to active antenna design*
V. F. Fusco, Dpt. of Electrical and Electronic Engineering, Queen's U. of Belfast, Belfast, Ireland

F08:03 *Pattern synthesis of conformal arrays by the simulated annealing technique*
F. Ares, J. A. Ferreira, Grupo de Sistemas Radiantes, Dpt de Fisica Aplicada, Facultad de Fisica, U. de Santiago de Compostela, Spain

F08:04 *Radiation and scattering characteristics of spherical microstrip antennas*
H.-T. Chen, Dpt. of Electrical Engineering, Chinese Military Academy, Taiwan

F08:05 *Coupling and radiation characteristics of cylindrical microstrip arrays*
K.-Lu Wong, Dpt. of Electrical Engineering, National Sun Yat-Sen U., Kaohsiung, Taiwan

F08:06 *Powerful algebric tools for the modeling of microstrip antennas mounted on arbitrary conformal structures*
J.-P. Damiano, J.-M; Ribero, M. Scotto, R. Staraj, Laboratoire d'Electronique, Antennes et Télécommunications, U. de Nice-Sophia Antipolis, Valbonne, France

F08:07 *A Method for designing broadband microstrip antennas in multilayered planar structures*
Z.-Fa LIU, P.-S. Kooi, L.-W. Li, M.-S. Leong, T.-S. Yeo, Communications & Microwave Division, Dpt. of Electrical Engineering, National U. of Singapore, Singapore

F08:08 *Analysis of microstrip antennas on spherical dielectric substrates perpendicular to a ground plane*
W. Y. Tam, Dpt. of Electronic Engineering, The Hong Kong Polytechnic U., Hong Kong, PRC

Session G10
Thursday, July 16 AM
Optical Interconnections in Electronic Systems : Design and Realization (I)

Organiser : E. Griese
Chair : E. Griese

G10:01 *Intelligent optical networks*
Ted. H. Szymanski, McGill U., Dpt. of Electrical Engineering, Montreal, Quebec, Canada

G10:02 *Optical interconnection subsystem in parallel processing machine RWC-1*
T. Yoshikawa, Optical Interconnection NEC Laboratory, RWCP, Ibaraki, Japan ; H. Matsuoka, Parallel and Distributed System Performance TRC Laboratory, RWCP, Ibaraki, Japan

G10:03 *VLSI processing using optoelectronics and optical interconnects*
D. Fey, G. Grimm, C. Scheuermann, Friedrich-Schiller-U. Jena, Institut fuer Informatik, Jena, Germany

G10:04 *Design of a free-space photonic backplane*
B. Robertson, McGill U., Dpt. of Electrical Engineering, Montreal, Quebec, Canada

G10:05 *An overview of polymer fiber optical interconnect program at NEC research institute*
Y. Li, NEC Research., Princeton, USA

G10:06 *Conventional printed circuit boards with integrated optical interconnects*
E. Griese, Siemens Nixdorf Informationassysteme AG / C-LAB, Paderborn, Germany ; A. Himmler, U. GH Paderborn / C-LAB, Paderborn, Germany

Session G11
Thursday, July 16 AM
Photonic Crystals : from Microwave to Optics

Organiser : J-M. Lourtioz

First part : Chairs : J-M. Lourtioz, E. R. Brown

G11:01 *3d metallo-dielectric photonic crystals with strongly capacitively coupled metallic islands*
(Overview) E. Yablonovitch, D. F. Sievenpiper, Electrical Engineering Dpt, U. of California, Los Angeles, USA

G11:02 *Localization in metal PBG's at millimeter wavelengths : finite superlattices and microresonators*
(Overview) D. Lippens, IEMN, U. des Sci. et Techniques de Lille, Villeneuve d'Ascq, France

G11:03 *Issues in the control of guided waves by two-dimensional photonic bandgaps for optoelectronics*
D. Labilloy, H. Benisty, T. F. Krauss, U. Oesterlé, R. Houdré, LaboratoirePMC, Ecole Polytechnique, Palaiseau, France

G11:04 *Photonic crystals as optical fibre waveguides*
J. C. Knight, T. A. Knight, T. A.Birks, R. F. Cregan, B. J. Mangan, P. St. J. Russell, Optoelectronics group, Dpt of Physics, U. of Bath, Bath ; J.-P. de Sandro, G. G. Vienne, Optoelectronics Research Centre U. of Southampton, Southampton, UK

G11:05 *Light-commandable defects in a three-dimensional terahertz photonic crystal*
A. Chelnokov, S. Rowson, J.-M. Lourtioz, Inst. d'Electronique Fondamentale, U. de Paris-Sud, Orsay, France ; L. Duvillaret, J.-L. Coutaz, Laboratoire d'Hyperfréquence et Caractérisation, U. de Savoie, Le Bourget du Lac, France

Session H06
Thursday, July 16 AM
Chiral Media
Workshop on Complex Media and Measurement Techniques

H06:01 *Spatially dispersive media as physically realisable alternatives for the perfectly matched layer*
S. A. Tretyakov, Radiophysics Dpt, St. Petersburg State Technical U., St. Petersburg, Russia

H06:02 *Bessel light beam structure in anysotropic crystals*
A.M.Goncharenko, N. A. Khilo, E. S. Petrova, Div. for Optical Problems in Information Technologies, Minsk, Belarus

H06:03 *Volumetric integral equation for bianisotropic media*
M. V. Davidovich, Saratov State Technical U., ED & ID Dpt, Saratov, Russia

H06:04 *Light reflection from an anisotropic magneto-optical medium with arbitrary direction of the magnetization*
J. Pistora, D. Hrabovsky, K. Postava, D. Ciprian, Dpt. of Physics, Technical U. Ostrava, Ostrava Poruba, Czech Republic ; A. Fert, LPMC, INSA Toulouse, Dpt of Physics, Complexe Scientifique de Rangueil, Toulouse, France

H06:05 *Alternative analysis on bianisotropic mixtures*
W. Ren, T. Matsuoka, M. Tateiba, Dpt. of Comp. Sci. & Comm. Eng. Kyushu U., Fukuoka, Japan

H06:06 *Numerical solution of scattering problems due to three-dimensional chiral bodies by using the MoM/FEM hybrid method*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; A. Massa, M. Raffetto, Dpt of Biophysical and Electronic Engineering, U. of Genova, Genova, Italy

J. I. P. R. 4 - Session I08
Thursday, July 16, AM 08:40-12:20
Polarimetric Signal Processing
Organisers : G. Wanielik and E. Pottier
Chairs : G. Wanielik and E. Hanle

I08:01 *Multi-functional N-vector polarimetric radar signal processing*
(Overview) G. Wanielik, Daimler Benz AG, Ulm, Germany.

I08:02 *Near grazing angle measurements of terrain and vegetation at 76 Ghz and 140 Ghz*
R. Finkele, A. Schreck, G. Wanielik, Daimler-Benz AG, Research Center, Ulm, Germany.

I08:03 *Estimation of invariant Jones matrix parameters of the troposheric radiopropagation channel*
V.A. Khlusov, M.V Krutikov, G.S. Sharygin, Wave Scattering and Propogation Laboratory, TUCSR Tomsk, Russia.

I08:04 *Modulation technique and data acquisition in a multifunctional polarimetric near range radar sensor*
U. Siart, J. Detlefsen, Technische University Munchen, Lehrstuhl fur Hochfrequenztechnik, HFS, Munchen, Germany ; M. Wollitzer, G. Wanielik, A. Schreck, Daimler Benz AG, Ulm, Germany.

I08:05 *Monostatic polarimetric R.C.S near field / far field transformation*
F. Le Dorse, E. Pottier, J. Saillard, SEI-EP CNRS 63, IRESTE, Nantes, France.

I08:06 *Comparison of several polarimetric radar configuration and calibration methods*
A Rousseau, Matra Défense BAe, Selles Saint Denis, France.

I08:07 *Tools for characterizing antenna polarization*
B. Chevalier, E. Pottier, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

I08:08 *Polarimetric selection of the targets with adaptive signal processing*
V. I. Ponomaryov, Inst. Politecnico Nacional. ESIME, U.P. Ticoman, col.San Jose Ticoman, Mexico ; A.V. Popov, M. F. Mamakov, Karkov, Aviation Inst., Ukraine.

I08:09 *Comparison of simulation results of polarization parameters' Doppler modulation with experimental data*
V.I. Karnychev, Tomsk University of Control System and Radioelectronics, Tomsk, Russia

Session J07
Thursday, July 16 AM
Polarimetry, Interferometry and their Combination for Vegetation Studies
Organisers : M. Moghaddam
Chairs : M. Moghaddam, R. Treuhaft

J07:01 *«An introduction to polarimetric interferometry»*
S. R. Cloude, AEL, Andrews, Scotland, UK

J07:02 *A unified analysis of radar inteferometry and polarimetry for the estimation of forest parameters*
R. N. Treuhaft, M. Moghaddam, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, California, USA

J07:03 *High resolution polarimetric and interferometric radar observation of tropical rain forest*
D. Hoekman, C. Varekamp, Wageningen Agricultural U., Dpt of Water Resources, Wageningen, The Netherlands

J07:04 *Multidate ERS tandem data acquired over hilly forested terrain: discrimination of land-cover and forest types*
J. M. Martinez, A.Beaudoin, U. Wegmuller, T. Strozzi, LCT Cemagref-ENGREF, Montpellier, France

J07:05 *Modeling coniferous forest backscatter using statistically validated geometric information*
P. Ferrazzoli, L. Guerriero, U.` Tor Vergata, DISP, Roma, Italy

J07:06 *Volume scattering effects in radar interferograms: foliage and icy media*
H. A. Zebker, W. Hoen, Dpt of Geophysics and Electrical Engineering, Stanford U., Stanford, CA, USA

J07:07 *The representation of vegetation scattering components in models: theory and observation*
J. Bennet, S. Quegan, K. Morrison, and S.C.M. Brown, SCEOS, U. of Sheffield, Sheffield, UK

J07:08 *Model investigation on the influence of tree distributions on SAR interferometry of forest*
G. Smith, J. Askne, Remote Sensing Group, Dpt of Radio and Space Sci., Chalmers U. of Technology, Goteborg, Sweden

J07:09 *Modeling of radar response of some land cover types for the interpretation of polarimetric / interferometric measurements*
N. Floury, D. Dendal, T. Le Toan, J. C. Souyris, Centre d'Etudes Spatiales de la Biosphere, U. Paul Sabatier, Toulouse, France

J07:10 *A hybrid algorithm for estimating forest parameters from POLSAR and INSAR data: an approach to minimizing the need for ancillary data*
M. Moghaddam, R. Treuhaft, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, California, USA

Session K06
Thursday, July 16 AM
Microwave Propagation in Tropical Regions
Organiser : M. Thurai
Chairs : M. Thurai, P. Watson

K06:01 *The need for data in the tropics for propagation predictions*
B. Arbesser-Rastburg, Wave Inetractions & Propagation Section ESA-ESTEC, Kaperlan, The Netherlands

K06:02 *Rain cell diameters and heights - A new model of rain attenuation*
G. H. Bryant, Faculty of Electrical Engineering, Telecommunications Dividion, Eindhoven U. of Technology, Eindhoven, The Netherlands ; I. Adimula, Dpt di Electronica e Informazione, Politecnico di Milano, Milano, Italy ; C. Riva, Dpt di Electronica e Informazione, Politecnico di Milano, Milano, Italy

K06:03 *Tropical precipitating cloud systems observed above manus island, PNG, using profiling Doppler Radars*
C. R. Williams, K. S. Gage, W. L. Ecklund, P. E. Johnston, CIRES, U. of Colorado, Boulder, Colorado, USA ; C. R. Williams, K. S. Gage, W. L. Ecklund, P. E. Johnston, NOAA, Aeronomy Laboratory, Boulder, Colorado, USA

K06:04 *Investigation of rain fading and posssible countermeasures on satellite-earth links operating in tropical regions*
A. F. Ismail, P. A. Watson, U. of York, Dpt of Electronics, York, UK ; P. K. Seng, Y.Y. Ja, All Asia Broadcast Centre, Technology Park Malaysia ; M. Thurai, J. D. Eastman, Rutherford Appleton Laboratory, Oxon, UK

K06:05 *Variation of oceanic rain rate parameters derived from SSMI/I*
L. S. Chiu, SAIC/General Sci. Corporation, Laurel, Maryland, USA ; A. T. C. Chang, Hydrological Sci. Branch, NASA/Goddard Flight Center, Maryland, USA

K06:06 *Spatial variation of rainfall rate in Singapore*
J. T. Ong, School of Electrical and Electronic Engineering, Nanyang Technological U., Singapore

K06:07 *Modelling of rain attenuation at a tropical location*
A. Maitra, Inst. of Radio Physics and Electronics U. of Calcutta, Calcutta, India

K06:08 *A meltring layer model invertigated using doppler spectra recorded in Papua New Guinea*
M. D'Amico, Politechnico di Milano, Milano, Italy ; M. Thurai, Rutherford Appleton Laboratory, Oxon, UK

Session L07
Thursday, July 16 AM
Indoor Propagation

L07:01 *Simulation of adaptive antennas in indoor environments by using ray-tracing*
R. P. Torres, C. Alonso, Dpt de Ingeniería de Comunicaciones. U. de Cantabria, Avda. de Los Castros, Spain

L07:02 *UHF indoor measurements*
S. Salous, Dpt of Electrical Engineering and Electronics UMIST, Manchester, UK

L07:03 *Indoor propagation measurements : propagation between floors*
J. Vähäkangas, A. Suhonen, J. Nuutien, Nokia Telecommunications / Radio Access Systems, Oulu, Finland

L07:04 *Comparison between two geometric indoor propagation models : tube launching and ray launching*
S. J. Flores, L. F. Mayorgas, F. A. Jiménez, Dpt de Comunicaciones, Escuela U. de Gandia, Playa Gandia, Spain

L07:05 *A hybrid method for indoor propagation modelling*
E. Tekbas, Kýrýkkale U.,Engineering Faculty Electrical and Electronics Engineering Dpt, Kýrýkkale, Turkey

L07:06 *Characterization of indoor propagation and building components loss factor*
F. Gaudaire, Y. Gabillet, Service acoustique CSTB - Centre Scientifique et Technique du Batiment, St Martin D'Heres, France

L07:07 *Statistical model and simulation of indoor channel propagation in 1.8 GHz*
A. Affandi, Inst. Teknologi Sepuluh Nopember, Surabaya, Indonesia ; O. Paviot, Laboratoire Composants et Systèmes pour Télécommunications, Rennes, France

L07:08 *An efficient method to analyze radiopropagation in enclosed spaces combining image theory with BSP*
R. P. Torres, L. Valle, M. Domingo, Dpt de Ingeniería de Comunicaciones, U. de Cantabria, Santander, Spain

Session M06
Thursday, July 16 AM
Medical Applications

M06:01 *Iterative magnetic current reconstruction form cylindrical acquisition*
F. Las Heras, Grupo de Radiación, Dpt. Señales, Sistemas y Radiocomunicaciones U. Politécnica de Madrid ETSI Telecomunicación, Madrid, Spain

M06:02 *Design and optimization of short antennas for phased-array hyperthermia applicator*
J. Nadobny, W. Wlodarczyk, P. Wust, H. Fähling R. Felix, Strahlenklinik/Hyperthermie, Berlin, Germany ; J. Nadobny, P. Deuflhard, Konard-ZUSC-Zentrum für Informationstechnik Barlin, Berlin, Germany ; W. Wlodarczyk, G. Mönich, Inst. für Hochfrequenztechnil, Technische U. , Berlin, Germany

M06:03 *Numerical studies of electromagnetic compatibility for combination of phased array hyperthermia applicator and magnetic resonance tomograph*
W. Wlodarczyk, J. Nadobny, P. Wust, H. Fähling, A. Salah, R. Felix, Strahlenklinik/Hyperthermie, Berlin, Germany ; W. Wlodarczyk, G. Mönich, Inst. für Hochfrequenztechnik, Technische U., Berlin, Germany

M06:04 *Fan beam based high speed imaging of the chirp radar-type microwave computed tomography*
M. Miyakawa, K. Kai, R. De Che, Dpt of Information Engineering, Faculty of Engineering, Niigata U., Niigata, Japan

M06:05 *Amplitude modulation based fast data acquisition of the chirp radar-type microwave computed tomography*
M. Miyakawa, M. Takabayashi, Dpt of Information Engineering, Faculty of Engineering, Niigata U., Niigata, Japan

M06:06 *The equations of generalized electrodynamics for the transverse and longitudinal electromagnetic waves*
E. I. Nefyodov, Inst. of Radioengineer and Electronics RAS, Moscow, Russia ; A.A. Khadartsev, A. A. Yashin, A.A. Protopopov, T. I. Subbotina, State Scientific Research, Inst. of Modern Medical Technologies, Tula, Russia

M06:08 *Electromagnetic fields induced inside human tissue : an analysis using solenoidal basis functions*
L. S. Mendes, S. A. de Carvalho, Faculdade de Engenharia Elétrica e de Computação U. Estadual de Campinas, Campinas, Spain

Session A08
Thursday, July 16 PM
Coherent Effects in Random Media

Organiser : V. Freilikher
Chairs : V. Freilikher, H. Ogura

A08:01 *Mie scattering in a magnetic field*
B. van Tiggelen, D. Lacoste, CNRS/Laboratoire de Physique et modelisation des systèmes Condensés, U. Joseph Fourier, Magistère, Grenoble, France ; G. Rikken, A. Sparenberg, Grenoble High Magnetic Field Laboratory, Max-Planck Inst. für Festkörperforschung/CNRS, Grenoble, France

A08:02 *Time dependance of the speckle in the multiple scattering of waves in random systems*
R. Maynard, Physique et Modelisation des Milieux Condenses U. Joseph Fourier/CNRS/Magistere, Grenoble, France

A08:03 *Spectral properties of classical waves in high contrast periodic media*
A.Figotin, Dpt of Mathematics, U. of North Carolina, Charlotte, USA

A08:04 *Numerical study of band gaps generated by randomly perturbed metallic photonic crystals*
G. Guida, D. Maystre, G. Tayeb, P. Vincent, Laboratoire d'Optique, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France

A08:05 *Static phase and dynamics of microwaves in random media*
P. Sebbah, O. Legrand, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France ; A. Z. Genack, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA

A08:06 *Statistics of microwave radiation near the localization threshold*
A. Genack, M. Stoytchev, A. Chabanov, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA

A08:07 *Coexistence of ballistic transport, diffusion, and localization in surface disordered waveguides*
V. Freilikher, The Jack and Pearl Resnik Inst. of Advanced Technology, Dpt of Physics, Bar-Ilan U. Ramat-Gan, Israël ; A.A. Maradudin, Dpt of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California, Irvine, USA ; J. A. Sanchez-Gil, Inst de Estructura de la Materia, C.S.I.C., Madrid, Spain ; I. Yurkevich, School of Physics and Space Research, U. of Birmingham, Birmingham, UK

A08:08 *Disordered microwave cavities as a model for spectral correlations in the transition from diffusive to ballistic regimes*
O. Legrand, F. Mortessagne, P. Sebbah, C. Vanneste, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France

A08:09 *Scaling properties in highly anisotropic systems*
C. M. Soukoulis, E. N. Economou, I. Zambetaki, S. Katsoprinaski, Research Center of Crete, Dpt of Physics, U. of Crete, Heraklion, Crete, Greece ; C. M. Soukoulis, Q. Li, Ames Laboratory and Dpt of Physics and Astronomy, Ames, Iowa, USA

A08:10 *Can a thermal source be spatially coherent ?*
J.-J. Greffet, R. Carminati, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France

A08:11 *Scattering of two-dimensional random heterogeneous media : comparison of radiative transfer and electromagnetic numerical simulations*
J.-J. Greffet, J.-B. Thibaud, Lab. EM2C, UPR 288 CNRS, Chatenay-Malabry, France ; L. Roux, P. Mareschal, N. Vukadinovic, Dassault Aviation, Saint Cloud, France

A08:12 *Experimental study of light scattering by well characterized two-dimensional randomly rough dielectric surfaces*
M. O. Calvo, J. Greffet, Laboratoire EM2C, Ecole Centrale Paris, Châtenay-Malabry, France ; M. Josse, Commissariat à L'Energie Atomique, Centre d'Etudes Scientifiques et Techniques d'Aquitaine, Le Barp, France

A08:13 *Scattering from an object on random rough surface stochastic green function*
H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan ; T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan

A08:14 *Frequency-angular correlations of the intensity of scattered wave from a random surface*
T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan

A08:15 *Backscattering enhancement in the scattering from a cylindrical random rough metal surface*
Z. L. Wang, M. Izutsu, The Communications Research Laboratory, Koganei, Tokyo, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan

A08:16 *Near-field and far-field changes in the spectrum of light scattered from a randomly rough surface*
V. Shchegrov, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California

A08:17 *Incoherent acoustic imaging in the ocean*
M. J. Beran, Faculty of Engineering, Tel Aviv U., Ramt Aviv, Israel

A08:18 *Impurity induced local polariton states*
A.A. Lisyansky, L. I. Deych, Dpt of Physics, Queens College of City U. of New York, Flushing, NY

A08:19 *Transverse spectra in two-way wave propagation in random media*
S. Frankenthal, Faculty of Engineering, Tel Aviv Univ., Ramt Aviv, Israel

A08:20 *Dispersion relation for electromagnetic waves in a stochastically modulated dielectric superlattice*
A. R. McGurn, S. Simeonov, Dpt. of Physics, Western Michigan U., Kalamazoo, Michigan, USA ; A. A. Maradudin, Dpt of Physics and Astronomy, U. of Californie, Irvine, USA ; V. A. Ignatchenko, Yu. I. Mankov, M. V. Erementchouk, L. V. Kirensky Instit. of Physics, Kranoyarsk, Russia

A08:21 *Wave localization in random media : a path-integral approch*
G. Samelsohn, R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel

A08:22 *Modeling of high-frequency propagators in inhomogeneous background random media*
R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel

Session B07
Thursday, July 16 PM
Detection and/or Imaging of Buried Objects

Organisers : Ch. Pichot, S. Caorsi
Chairs : D. Daniels, J. Cashman

B07:01 *Adances in the ultrawideband radar imaging of buried mines*
D. Daniels, ERA Technology, Cleeve Road, Leatherhead, UK

B07:02 *On the detection of buried objects from inductive arrays*
E.L. Miller, Dpt. of Electrical and Computer Engineering, Northeastern U., Boston, MA, USA ; W.C. Karl, Dpt. of Electrical and Computer Engineering, Boston U., Boston, MA, USA

B07:03 *Electromagnetic inversion for multi-bistatic ground penetrating radar*
P. M. Johansen, C. M. Rappaport, A. J. Devaney, E. L. Miller, Center for Electromagnetic Research, Boston, MA, USA

B07:04 *Imaging of buried objects from multi-look, multifrequency radar data in the fourier domain, including antenna effects*
J.D. Cashman, U. of New South Wales, Canberra, Australia ; Ch. Pichot, J.Y. Dauvignac, Laboratoire d'Electronique, Antennes et Télécommunications, Valbonne, France

B07:05 *Nonlinear inversion of a buried object in TE-scattering*
B.J. Kooij, Center for Technical Geoscience, Laboratory of Electromagnetic Research, Dpt. of Electrical Engineering, Delft U. of Technology, Delft, The Netherlands ; M. Lambert, Laboratoire des Signaux et Systèmes, Gif-sur-Yvette, France

B07:06 *An iterative scheme for the reconstruction of homogeneous penetrable objects using a boundary integral method*
S. Bonnard, M. Saillard, P. Vincent, Laboratoire d'Optique Electromagnétique, U. d'Aix-Marseille, Marseille, France

B07:07 *Electromagnetic imaging of immersed metallic structures*
J.M. Geffrin, B. Duchêne, Laboratoire des Signaux et Systèmes, Plateau de Moulon, Gif-sur-Yvette, France

B07:08 *On the characterization of a conductive body in a conductive earth using low-frequency asymptotic analyses*
G. Perrusson, M. Lambert, D. Lesselier, B. Duchêne, Laboratoire des Signaux et Systèmes, Gif-sur-Yvette, France ; A. Charalambopoulos, G. Dassios, G. Kavyssas, U. of Patras, Greece ; B. Bourgeois, BRGM, France

B07:09 *Underground tomogram from in-situ data measured in the cross-borehole configuration*
S-K. Park, H-K Choi, J-W Ra, Dpt of Electrical Engineering, Korea Advanced Inst. of Sci. and Technology, Taejon, Korea

Session C07
Thursday, July 16 PM
Advances Techniques in TLM Field Computation

Organiser : C. Christopoulos
Chairs : C. Christopoulos, M. Ney

C07:01 *A modification of TLM method for dispersive media, suitable for experimental data*
J. Represa, I. Barba, A. C. L. Cabeceira, M. Panizo, J. Represa, Dpt. Electricidad y Electrónica. Facultad de Ciencias U. de Valladolid, Valladolid, Spain

C07:02 *Application of the propagator approach to the modelling of dispersive media in TLM*
J. Rebel, P. Russer, Lehrstuhl für Hochfrequenztechnik, Technische U. München, München, Germany

C07:03 *Investigation on the dispersion of 3D-TLM condensed nodes: Comparison with the FDTD Yee's scheme*
N. Pena, M. M. Ney, Laboratory for Electronics and Communication Systems, Ecole Nationale Supérieure des Télécommunications, Brest, France

C07:04 *Recent enhancements to TLM for inductrial use*
V. Trenkic, R. Scaramuzza, A. Wlodarczyk, Kimberley Communications Consultants Ltd., Nottingham, UK

C07:05 *New TLM nodes for modelling sharp zones in resonant situations*
J.A. Porti, J. A. Morente, H. Magan, Dpt of Applied Physics, Faculty of Sci., U. of Granada, Granada, Spain

C07:06 *Simulation of microwave circuits using TLM*
A. Vukovic, C. Christopoulos, Numerical Modelling Laboratory, Dpt of Electrical and Electronic Engineering , U. of Nottingham, Nottingham, UK

C07:07 *TLM analysis of CPW bend used to provide a circular polarisation*
M. Malhas, R. Staraj, J.-L. Dubard, D. Pompéi, Laboratoire d'electronique, U. de Nice Sophia-Antipolis, Valbonne, France

C07:08 *Field theoretical derivation of lumped element equivalent circuits for multichip module chip-Connections*
T. Mangold, Lehrstuhl fuer Hochfrequenztechnik, Technische U. Muenchen, Muenchen, Germany

C07:09 *Comparison of TLM-GSCN and FD-TD dispersion characteristics*
V. Trenkic, Kimberley Communications Consultants Ltd., Nottingham, UK

Session D07
Thursday, July 16 PM
Hydrid Methods

D07:01 *Hybrid FDTD-FETD method for 3D antenna modeling*
P.-Y. Garel, Ch; Pichot, J.-Y Dauvignac, Laboratoire d'Electronique, Antennes et TELEcommunications, U. de Nice-Sophia-Antipolis/CNRS, Valbonne, France ; C. Dedeban, France Telecom//CNET, La Turbie, France

D07:02 *Accurate and fast design of waveguide components by hybrid mode-matching/FE building blocks in a powerful CAD tool*
F. Arndt, R. Beyer, Th. Sieverding, P. Krauss, Microwave Dpt., U. of Bremen, Bremen, Germany

D07:03 *New time domain integral equation approach for hybrid methods*
C. Girard, A. Reineix, M. Ariaudo, B. Jecko, IRCOM-UMR CNRS 6615, Limoges, France

D07:04 *Computation of 3D anisotropic scatterers by several hybrid FEM/DEM methods*
H. Steve, Dassault Aviation, Saint-Cloud, France ; P. Soudais, ONERA/DEMR, Chatillon, France

D07:05 *Analysis of high frequency electron devices using a hybrid FE/FD-TD technique*
A. Cidronali, G. Pelosi, Dpt of Electronics Engineering, U. of Firenze, Italy, G. Manara, A. Monorchio, Dpt of Information Engineering, U. of Pisa, Italy

D07:06 *Improved FE-FCT method for the solution of gas discharge problems*
G. E. Georghiou, R. Morrow, A. C. Metaxas, Electricity Utilisation Group, Engineering Dpt., Cambridge U., Cambridge, UK

D07:07 *Solution of nonlinear coupled electromagnetic-thermal problems using the finite integration method*
P. Pinder, T. Weiland, Darmstadt U. of Technology, Fachgebiet Theorie Elektromagnetisher Felder, Darmstadt, Germany

D07:08 *A hybrid formulation combining FDTD and TDPO*
F. Le Bolzer, R. Gillard, J. Citerne, L.C.S.T. I.N.S.A., C.N.R.S. U.P.R.E.S.A. 6075, Rennes, France;
V. Fouad Hanna, France Telecom, CNET/DMR, France

Session E10
Thursday, July 16 PM
Discontinuities

E10:01 *Multimode analysis of printed circuit lines by method of simultaneous diagonalization*
Y. O. Shlepnev, Eagleware Corporation, Tucker, GA, USA

E10:02 *Efficient numerical method for microstrip discontinuities analysis*
M. Tellache, B. Haraoubia, Laboratoire LMH, Inst. d'Electronique, USTHB, Algiers, Algeria ; H. Baudrand, Laboratoire d'Electronique, ENSEEIHT, Toulouse, France

E10:03 *Efficient analysis of passive microstrip elements using the matrix pencil method*
A. Samet, Ecole Polytechnique de Tunisie, La Marsa, Tunisie ; A. Bouallègue, Laboratoire des Systèmes de Télécommunications Ecole Nationale d'Iingénieurs de Tunis, Tunisie ; A. B. Kouki, F. M. Ghannouchi, Ecole Polytechnique de Montréal, Montréal, Canada

E10:04 *Full-wave analysis of multimode waveguide discontinuities*
F. Huret, L. Kadri, Ph. Pannier, M. Arif, C. Seguinot, P. Kennis, F. Huret, Inst. d'Electronique et de Microélectronique du Nord, Dpt Hyperfréquences et Semiconducteurs, Villeneuve d'Ascq, France

E10:05 *Analysis of discontinuities in a rectangular waveguide using hybrid numerical and spectral techniques*
V. E. Boria Esbert, H. Esteban, S. Cogollos, M. Ferrando, Dpt de Comunicaciones U. Politécnica de Valencia, Valencia, Spain

E10:06 *Solution of the junction of TE11-mode circular waveguides by the least squares method*
H. Oraizi, IRAN U. of Sci. and Technology, Dpt of Elect. Eng, Tehran, Iran

Session F07
Thursday, July 16 PM
Conformal and Smart Skin Antennas
Organiser : A. Priou
Chairs : A. Priou, G. Washington

F07:01 *Electromagnetic smart structures*
A. Priou, U. of Paris X, Inst. of Technology, Avray, France

F07:02 *Smart electromagnetic structures: a new paradigm for microwave technology*
G. Washington, E. Kiely, H-S Yoon, Ohio State U., USA

F07:03 *On layer and between the layers connections for smart skin applications*
J. Piotr Starski, Chalmers U. of Technology, Division of Microwave Technology, Gothenburg, Sweden

F07:04 *A 64 element broad band volumetric array antenna*
A. Tennant, M. Precious, Dpt. of Electronic Engineering, The U. of Hull, Hull

F07:05 *Numerical and experimental tools for conformal array performance investigation*
Chr. v. Winterfeld, H. Gniss, P. Knott, W. Söntgerath, FGAN Forschungsinstitut für Hochfrequenzphysik (FHP), Wachtberg, Germany

F07:06 *Pattern synthesis for large conformal array analysis, using two-port elements for polarimetric correction*
O. Schmid, FGAN Forschungsinstitut für Hochfrequenzphysik (FHP), Wachtberg, Germany

F07;07 *Analysis of conformal microstrip lines and antennas using the nonorthogonal FDTD method*
K. Ravard, R. Gillard, J. Citerne, Laboratoire Composants et Systèmes pour Télécommunications, UPRES-A-6075, LCST-INSA, Rennes, France

F07:08 *Improved asymptotic solutions for the calculation of the mutual coupling between the elements of a conformed array of patch antennas*
F. Molinet, Société MOTHESIM, Le Plessis-Robinson, France

F07:09 *Microstrip patch antenna on conical structures*
T. Girard, R. Staraj, E. Cambiaggio, LEAT-UPRESA CNRS 6071, U. de Nice-Sophia Antipolis, Valbonne, France ; F. Müller, LSR/LAT - UPRES-A CNRS 6075 U. de Rennes, Rennes, France

F07:10 *Conformal array antenna for aircraft application*
M. Caplot, C. Chekroun, Thomson-CSF, Radars and Countermeasures Division (RCM), Elancourt, France ; T. Lemoine, Thomson-CSF, Central Research Laboratory (LCR), Orsay, France

Session G11
Thursday, July 16 PM
Photonic Crystals : from Microwave to Optics

Organiser : J-M. Lourtioz

Second part : Chairs : J-M. Lourtioz, E. Yablonovitch

G11:06 *Microwave antennas on photonic crystal substrates*
(Overview) E. R. Brown, Defence Avanced Research Projects Agency, Lexington, MA, USA

G11:07 *Arrays grating lobes reduction using metallic photonic band-gap materials*
G. Poilasne, Ph. Pouliguen, K. Mahdjoubi, C. Terret, LSR/LAT UPRES-A CNRS 6075, U. de Rennes 1, Rennes, France ; Ph. Gelin, LEST UMR CNRS 6616, ENST Bretagne, Brest, France

G11:08 *Photonic band gap materials for microstrip patch antennas*
M.S. Denis, A. Reineix, M. Thevenot, B. Jecko, IRCOM-UMR CNRS 6615, Faculte des Sci., Limoges, France

G11:09 *Band gap engineering in micro-wave PBG material*
F. Gadot, A. de Lustrac, P. Crozat, J. M. Lourtioz, Inst. d'Electronique Fondamentale,U. Paris-sud, Orsay, France ; A. Ammouche, Groupe d'Electromagnétisme Appliqué, IUT de Ville d'Auray, U. Paris X, Ville d'Avray, France

G11:10 *Theoretical and experimental study of defect mode in graphite PBG material*
F. Gadot, A. de Lustrac, P. Crozat, J. M. Lourtioz, Inst. d'Electronique Fondamentale, U. Paris XI, Orsay, France ; A. Ammouche, Groupe d'Electromagnétisme Appliqué, IUT de Ville d'Auray, U. Paris X, Ville d'Avray, France ; D. Cassagne, C. Jouanin, Groupe d'Etude des semiconducteurs, U. de Montpellier II, Montpellier, France

Session G12
Thursday, July 16 PM
Superconducting Devices : Modeling and Desing

Organisers : I. Vendik, P. Guillon
Chairs : I. Vendik, P. Guillon

G12:01 *Modeling of pass-band HTS microstrip filters based on a parallel-array of half-wavelength resonators*
I. Vendik, V. Kondratiev, D. Kholodniak, M. Goubina, A. Svishchev, Microwave Microelectronics Lab., Dpt. of Microelectronics and Radio-Engineering, St.-Petersburg Electrotechnical U., St.-Petersburg, Russia

G12:02 *Miniature microwave filters for HTS applications*
F. Rouchaud, V. Madrangeas, M. Aubourg, P. Guillon, I.R.C.O.M. - U. of Limoges - UMR CNRS 6615, Limoges, France ; B. Theron, M. Maignan, ALCATEL ESPACE, Toulouse, France

G12:03 *HTS filters for satellite output multiplexers*
A. Baumfalk, H. Chaloupka, S. Kolesov, Dpt of Electrical Engineering, U. of Wuppertal, Wuppertal, Germany ; F.-J. Goertz, Bosch Telecom GmbH, Backnang, Germany, M. Klauda, Robert Bosch GmbH, Stuttgart, Germany

G12:04 *Modeling of coupled HTS coplanar waveguides*
I. Vendik, A. Deleniv, Microwave Microelectronics Lab., Dpt. of Microelectronics and Radio-Engineering, St.-Petersburg Electrotechnical U., St.-Petersburg, Russia

G12:05 *Quasioptical phonon cooled NbN hot electron bolometric mixers for terahertzfrequencies*
G. Gol'tsman, S. Svechnikov, P. Yagoubov, B. Voronov, E. Menschikov, E. Gershenzon, Dpt of Physics, Moscow State Pedagogical U., Moscow 119435, Russia

G12:06 *Microwave devices based on integrated HTS/Ferroelectric structures*
S. Gevorgian, E. Carlsson, P. Linner, Dpt of Microwave Technology Chalmers U. of Technology, Gothenburg, Sweden

G12:07 *Investigation of characteristics of different thickness HTS films at microwaves*
M.M.Gaidukov, E. K. Hollmann, D. P. Dovgan, O. U. Buslov, S. V. Razumov, A. V. Tumarkin, St. Petersburg Electrotechnical U., St.Petersburg, Russia

G12:08 *Recent advances on superconducting microstrip patch antennas*
H. C.C. Fernandes, G. F. Da Silveira Filho, Dpt of Electrical Engineering - Federal U. of Rio Grande do Norte, Natal/RN - Brazil

Session H07
Thursday, July 16 PM
Scattering by Complex Structures - Novel Applications I
Workshop on Complex Media and Measurement Techniques

Organisers : D. I. Kaklamani, G. S. Stamatakos
Chairs : D. I. Kaklamani, O. Breinbjerg

H07:01 *Applying the method of auxiliary sources on large scale and complex structures*
R. S. Zaridze, B. G. Bit-Babik, Tbilisi State U., Republic of Georgia; D. P. Economou, N. K. Uzunoglu, Dpt of Electrical and Computer Engineering, National Technical U. of Athens, Greece

H07:02 *Light scattering and light confinement in mesoscopic systems*
O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics, Swiss Federal Inst. of Technology, Zurich, Switzerland, C. Girard, CEMES/CNRS, Toulouse, France

H07:03 *Calculation of the radar cross section (RCS) of complex radar targets using the physical optics approximation*
N. K. Uzunoglu, P. V. Frangos, D. I. Kaklamani, Dpt of Electrical and Computer Engineering, National Technical U. of Athens, Greece; E. Boulougouris, Dpt of Naval Engineering, National Technical U. of Athens, Greece; S. Pintzos, Greek Naval Research Center (GETEN), Athens, Greece

H07:04 *Comparison of the UTD and EFIE method for the analysis of electrically large reflectors*
J. Hartman, D. Fasold, Fachhochschule Muenchen, Electrical and Electronics Engineering Dpt, Laboratory for Satellite Communications, Munich, Germany; D. Blaschke, Daimler-Benz Aerospace GmbH, Dornier Satellitensysteme GmbH, Munich, Germany

H07:05 *Uniform High-Frequency description of singly, doubly and vertex diffracted ray contributions to the currents on a polygonal plate*
S. Maci, M. Albani, F. Capolino, Information Engineering Dpt, U. of Siena, Siena, Italy

H07:06 *A comparative study of the plane wave scattering by perfectly conducting strip gratings and unidirectionally conducting surfaces*
O. Breinbjerg, Dpt of Electromagnetic Systems, Technical U. of Denmark, Lyngby, Denmark ; F. J. N. Geeraert, Nokia Mobile Phones A/S, Copenhagen, Denmark; M. Lumholt, TICRA, Copenhagen, Denmark

H07:07 *Extension of the Maliuzhinets method to the scattering by anisotropic impedance wedges illuminated at oblique incidence*
G. Manara, P. Nepa, Dpt of Information Engineering, U. of Pisa, Pisa, Italy; G. Pelosi, Dpt of Electronic Engineering, U. of Florence, Florence, Italy

Session H08
Thursday, July 16 PM
Scattering by Complex Structures - Novel Applications II
Workshop on Complex Media and Measurement Techniques

Organisers : G. S. Stamatakos, D. I. Kaklamani
Chairs : G. S. Stamatakos, K. Kyriaki

H08:01 *The cylindrical localized approximation to speed up computations in the generalized Lorentz-Mie theory for cylinders*
G.Gouesbet, K. F. Ren, G. Grehan, LESP/UMR 6614 - CORIA, CNRS U. & INSA de Rouen, France

H08:02 *The invisible part of an object or source distribution. Maxwell and radiative transfer theory of objects and sources generating zero intensity outside the distribution.*
B. J. Hoenders, U. of Groningen, Inst. of Theoretical Physics, The Netherlands

H08:03 *Integral equation solution to the scattering of light by systems of red blood cells*
G. S. Stamatakos, N. K. Uzunoglu, Dpt of Electrical and Computer Engineering, National Technical U. of Athens, Greece

H08:04 *The inverse scattering problem for dielectric bodies - An application to shape and refractive index analyzer*
D. Gintides, K. Kyriaki, Dpt of Mathematics, National Technical U. of Athens, Greece

H08:05 *A recent advance in light-scattering theory: the development of a rigorous and complete solution to multiparticle-scattering problems*
Yu-lin Xu, Dpt of Astronomy, U. of Florida, Gainesville, USA

H08:06 *Optical characterization of complex structures formed in combustion systems*
P. Massoli, Istituto Motori-CNR, Naples, Italy

J. I. P. R. 4 - Session I06
Thursday, July 16, PM 13:40-15:20
Polarimetric Diffraction and Scattering and Applications

Organiser : F. Molinet
Chair : F. Molinet

I06:01 *(Overview)* *Recent advances in polarimetric diffraction and scattering : physical diffraction phenomena versus abstract mathematical concepts in radar polarimetry*
F.A. Molinet, Société MOTHESIM, Le Plessis-Robinson, France.

I06:02 *Prediction of IN-BAND microstrip antennas array RCS*
P. Rigoland, C. Terret, Laboratoire Antennes et Télécommunications URA 834, Université de Rennes I, Rennes, France ; P. Pouliguen, Centre d'Electronique de l'ARmement, Bruz, France.

I06:03 *Electromagnetic analysis of dual polarization wide band antennas and arrays*
P. Poey, X. Begaud, Laboratoire Antennes et Réseaux/ Structures Rayonnantes URA 834, Université de Rennes I,Rennes, France.

I06:04 *Particle shape determination from polarization fluctuations of scattered radiation*
K.I. Hopcraft, B. P. Ablitt, E. Jakeman, Dpt of Theoretical Mechanics University of Nottingham, Nottingham, UK

J. I. P. R. 4 - Session I07
Thursday, July 16, PM 15:40-17:20
PLENARY SESSION AND PANEL DISCUSSION
Organiser : W.M. Boerner

INVITED KEYNOTE ADDRESS

I07:01 *What do mathematics afford to electromagnetic and acoustic scattering ?*
(Overview) P.C. Sabatier, Université de Montpellier II, Montpellier, Languedoc, France.

PANEL DISCUSSION

Chairman : F. Molinet

I07:02 *Recent advances in POL-SAR and POL-InSAR image processing*

Panel-Members:
T.L. Ainsworth, W.M. Boerner, S.R. Cloude, E. Krogager, J.S. Lee, T. Le Toan, E. Pottier, D.L. Schuler, A.J. Sieber, R.N. Treuhaft, G. Wanielik, R. Winter, H.A. Zebker.

Session J04
Thursday, July 16, PM
Scattering from Natural Bare Soils
Organiser : F. Mattia
Chairs : F. Mattia, T. Le Toan

J04:01 *New approaches to the observation and modelling of the radar backscatter from soil surfaces observations of coherent emissions from soils*
T. Le Toan, M. Davidson, CESBIO, Toulouse, France ; P. Borderies, I. Chenerie, ONERA, Toulouse, France ; F. Mattia, ITIS-CNR, Matera, Italy ; T. Manninen, VTT, Espoo, Finland ; M. Borgeaud, ESA/ESTEC, Noorwijk, NL

J04:02 *Multiscale surface roughness of natural bare soil*
T. Manninen, VTT Automation, Espoo,Finland

J04:03 *Measuring roughness at pixel scales:from 1 meter to 25 meter profiles*
M. Davidson, CESBIO, France ; M. Borgeaud, ESA/ESTEC, Noorwijk, NL ; F. Mattia, ITIS-CNR, Matera, Italy ; P. Borderies, I. Chenerie, ONERA, Toulouse, France ; T. Manninen, VTT, Espoo, Finland

J04:04 *On the backscattering from multiscale rough surfaces*
F. Mattia, ITIS-CNR, Matera, Italy ; T. Le Toan, CESBIO, Toulouse, France

J04:05 *Backscattering simulation from soil surfaces*
D. Casarano, F. Posa, INFM and Politecnico di Bari, Bari, Italy ; F. Mattia, ITIS-CNR, Matera, Italy ; T. Le Toan, France

J04:06 *On inverting backscattering from bare surfaces*
G. Satalino, G. Pasquariello, IESI-CNR, Matera, Italy ; T. Le Toan, M. Davidson, CESBIO, Toulouse, France

J04:07 *Observations of coherent emissions from soils*
T. Schmugge, T. J. Jackson, USDA/ARS Hydrology Lab, Beltsville, MD ; P. E. O'Neil, NASA/GSFC Hydrological Sci. Branch, Laboratory for Hydrospheric Preocesses, Greenbelt, MD ; M. B. Parlange, Dpt of Geography and Environnement Engineering Johns Hpkins U. Baltimore, MD, USA

Session J09
Thursday, July 16, PM
Radar Remote Sensing of Forests

J09:01 *Characterizing tropical vegetation canopies using multi-frequency interferometry and polarimetry*
E. Rodriguez, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, CA, USA

J09:02 *Surface roughness effects on active & passive microwave remote sensing of forests*
R. H. Lang, Dpt of Electrical Engineering & Computer Sci., The George Washington U., Washington DC, USA ; N. S. Chauhan, Hughes STX Corp, Lanham, MD, USA ; D. M. Le Vine, NASA Goddard Space Flight Center, Greenbelt, MD, USA

J09:03 *Measurements over forested areas : a microwave attenuation and backscattering experiment at 2.2 and 5.8 GHZ*
A.V. Bosisio, M. Dechambre, J.-P. Vinson, J.-Y. Delahaye, Centre d'étude des Environnements Terrestre et Planétaire, Vélizy, France

J09:04 *Contribution to the analysis of the interaction of an electromagnetic wave with forest. A full wave approach based on an integral representation*
L. Petit, H. Roussel, W. Tabbara, U. Paris VI, Division ondes-LSS/ Supelec, Gif/Yvette, France

Session K07
Thursday, July 16, PM
Propagation Effects and Models
Organisers : L. Bertel, Y. Beniguel
Chairs : L. Bertel, B. Arbesseer-Rastburg

K07:01 *H.F. channel modelling including antennas and propagation effects*
P. Parion, L. Bertel, Laboratoire de Structures rayonnantes / Radiocommunications, U. de Rennes I, Rennes, France

K07:02 *Practical metjodology for estimation of HF channel response*
F. Arikan, Dpt of Electrical and Electronics Engineering, Hacettepe U., Ankara, Turkey ; O. Arikan, Dpt of Electrical and Electronics Engineering, Bilkent U., Ankara, Turkey

K07:03 *First experimental approach to the VHF channel characterization using collocated antenna diversity in forest environment*
T. Dupaquier, Ecole Supérieure et D'Application des Transmissions, Rennes Armées, France ; M. Le Palud, Centre de Recherche des Ecoles de Coëtquidan, Guer, France ; L. Bertel, U. de Rennes I, Laboratoire de Structures Rayonnantes / Radiocommunications, Rennes , France

K07:04 *VLF/LF channel characterization*
C. Tanguy, M. Depiesse, P. Portala, DGA/DCE/CTSN/SN/TE, Toulon Naval, France

K07:05 *Characterisation and simulation of the HF transmission channel*
Y.M. Leroux, J. Menard, J. P. Jolivet, France Telecom, CNET, DMR/TSI, Lannion, France

K07:06 *Mobile radio channel characterisation with UMIST chirp sounder*
S. Salous, Dpt of Electrical Engineering and Electronics UMIST, Manchester, UK

K07:07 *Possible applications of HF colocated antennas*
F. Marie, L. Bertel, U. de Rennes I, Laboratoire de Structures rayonnantes / Radiocommunications, Rennes, France ; Y. Erhel, Centre de Recherche des Ecoles de Coëtquidan, Guer, France

K07:08 *Characterization of ionospheric scintillation errors : a comparison between different models*
Y. Béniguel, I.E.E.A, Courbevoie, France

K07:09 *High time domain resolution channel sounder operating in the 60 GHz band*
S. Guillouard, G. El Zein, J. Citerne, Laboratoire Composants et Systèmes pour Télécommunications, Structures Rayonnantes I.N.S.A. de Rennes, Rennes, France

K07:10 *Performances of two coherent spread spectrum DS/FH RAKE receivers for the troposcatter channel*
C. Moy, G. El Zein, J. Citerne, Laboratoire Composants et Systèmes pour Télécommunications, Structures Rayonnantes I.N.S.A. de Rennes, Rennes, France

K07:11 *Measurement of radiated power at VLF/LF*
P. Hansen, J. Chavez, Space and Naval Warfare Systems Center, San Diego, San Diego, CA, USA ; E. Courtland, Naval Computer and Telecommunications Command, Washington, DC, USA

Session L08
Thursday, July 16, PM
Frontiers of Electromagnetics Research
Organiser : U. Unrau
Chairs : U. Unrau, B. Lehnert

L08:01 *Failure of Maxwell electrodynamics*
J.P. Wesley, Blumberg, Germany

L08:02 *The impact of topology and group theory on future progress in electromagnetics research*
T. W. Barrett, BSEI, Vienna, VA, U.S.A.

L08:03 *An extended electromagnetic theory*
B. Lehnert, Royal Institute of Technology, Stockholm, Sweden

L08:04 *An explicit example of a family of non-planar free-space electromagnetic waves containing magnetic scalar potentials*
Héctor A. Múnera, Centro Internacional de Fisica, Bogotá, Colombia ; O. Guzmán, Dpt. de Fisica, U. Nacional Bogotá, Colombia

L08:05 *Relation between weber's electrodynamics and Maxwell's equations*
A. K. Torres de Assis, Inst. of Physics, State U. of Campinas, Campinas, SP, Brazil

L08:06 *Motional induction without a magnetic field*
J.P. Wesley, Blumberg, Germany

L08:07 *Local instantaneous energy and momentum densities of the free electromagnetic field*
V. Ilyin, Saratov State U., Saratov, Russia ; I. Nefedov, Inst. of Radio Engineering & Electronics, Academy of Sci., Saratov, Russia

L08:08 *Electrodynamics in an electric cusp and uncharged particle acceleration by electric reconnection*
H. Kikuchi, Nihon U., College of Sci. and Technology, Tokyo, Japan

L08:09 *Photon tunneling experiments and some aspects of their interpretation*
A. Enders, Institut für Elektromagnetische Verträglichkeit, Technische Universität Braunschweig, Braunschweig, Germany

Session M07
Thursday, July 16, PM
Material Measurements II
Workshop on Complex Media and Measurement Techniques
Organiser : Ph. Gelin
Chairs : Ph. Gelin, M. Merceur

M07:01 *Measurement of microwave characteristics of materials a working group for standardization*
N. Bardy, Commissariat à l'Energie atomique, Centre d'Etude Scientifique et Techniques d'Aquitaine, Le Barp, France

M07:02 *Improvement of measurement performance of an open-ended waveguide characterization method*
O. Tantot, P. Guillon, I .R.C.O.M. - U. of Limoges, Limoges, France

M07:03 *Electromagnetic chracterization of high temperature superconductors : state of the art in France*
J.-C. Carru, IEMN, U. de Lille 1, Villeneuve d'Ascq, france ; M. Pyee, LDIM, U. de Paris 6, Paris, France

M07:04 *A microwave technique for the broadband determination of the complex permeability tensor components of magnetized ferrite*
P. Queffelec, LEST, U. de Bretagne Occidentale, UFR Sci., Brest, France ; Ph. Gelin, Enst de Bretagne, Brest, France

M07:05 *Microwave material characterization using focused systems*
S. Bolioli, M. Lopez, ONERA-DEMR/APR, Toulouse, France

M07:06 *Electromagnetic characterization of heterogeneous chiral material using a free-space compact range system*
E. Chung, B. Sauviac, V. Vineras-Lefebvre, J. P. Parneix, Laboratoire PIOM, E.N.S.C.P Bordeaux, Talence, France

M07:07 *Non destructive testing of radar absorbing materials for industrial production stealhy missiles*
E. Marouby, E. Perez, A. Roussaud, E. Ongareau, J. P. Levrel, Matra Bae Dynamics, Selle Saint Denis, France

M07:08 *The determination of surface resistance for microwave antennas using dielectric resonator cavity techniques*
B. Givot, 3M Company, St. Paul, MN, USA ; R. Geyer, NIST, Electromagnetic Fields Division, Boulder, CO, USA

M07:09 *How wide frequency band dielectric spectroscopy contributes to explain chemical reactions under microwaves*
O. Meyer, S. Chevalier, A. Fourrier-Lamer, Laboratoire de Dispositifs Infrarouge et Micro-ondes, Université Paris VI, Paris, France

M07:10 *Current density measurements in space plasmas*
G. M. Avez, V. Krasnosel'skikh, P. Fergeau, LPCE / CNRS, Orléans, France

Session A09
Friday, July 17, AM
Scattering I

A09:01 *Near-field scattering of a ship in the sea due to a down-looking antenna*
S.-K. Jeng, National Taiwan U., Dpt of Electrical Engineering, Taipei, Taiwan

A09:02 *Scattering at a rotating cylinder*
P. Hillion, Inst. Henri Poincaré, Le Vésinet, France

A09:03 *Electromagnetic magnus effect*
P. Hillion, Inst. Henri Poincaré, Le Vésinet, France

A09:04 *Point source field scattering by the dffuse conducting cylinder in the plane waveguide*
T.I. Bichutskaya, G. I. Makarov, St. Petersburg U., Inst. of Radiophysics, St. Petersburg, Russia

A09:05 *The delta boundary operator (DBO) approach to electromagnetic scattering*
I. D. King, Defence Evaluation & Research Agency, Worcs, UK

A09:06 *Modified physical optics approach for line current wave scattering by coated planar strips*
A. Andrenko, M. Ando, Dpt. of Electrical & Electronic Eng., Tokyo Inst. of Technology, Tokyo, Japan

Session A10
Friday, July 17, AM
Structure Complex

A10:01 *Multi-layer coatings with random optical thickness*
H. E. Rowe, Stevens Inst. of Technology, Dpt. of Electrical and Computer Engineering, New Jersey, USA ;
N. A. Jackaman, Lucent Technologies, Holmdel, NJ, USA

A10:02 *Optical response of multilayer surface relief bigratings with non-identical faces*
G. Granet, J.-P. Plumey, J. Chandezon, Laboratoire des Sci. et Matériaux pour l'Electronique, et d'Automatique Unité Mixte de Recherche, U. Blaise Pascal, Les Cézeaux Aubière, France

A10:03 *Symmetry of the field transmitted by bi-periodic metallic grids*
A. Sentenac, D. Maystre, Laboratoire d'Optique, Faculté des Sciences et Techniques de St-Jérôme, Marseille, France

A10:04 *The magnetic field formulation applied on 2D axe-symmetrical magneto-dynamics problems with physical properties complexes*
F. L. S. Garcia, G. Meunier, P. Fouassier, Laboratoire d'Électrotechnique de Grenoble - INPG/ENSIEG, Domaine U., Saint Martin d'Hères, France

A10:05 *An efficient method for synthesizing dielectric structures inluding two frequency selective surfaces*
G. Salin, Dassault Electronique, Saint Cloud, France

A10:06 *The problems of mathematical simulation of anisotropic waveguides and resonators of microwe and EHF ranges*
Eu. I. Nefyodov, Institute of Radio electronics of Russian Academy of Sciences, Moscow, Russia

Session B08
Friday, July 17, AM
Electromagnetic Imaging for Biomedical Applications

Organisers : Ch. Pichot, S. Caorsi
Chairs : S. Caorsi, J. Ch Bolomey

B08:01 *Forward solution match issues affecting iterative inverse scattering approaches*
P.M. Meaney, K.D. Paulsen, J.T. Chang, Thayer School of Engineering, Hanover, NH, USA

B08:02 *Inverse scattering approaches for electromagnetic hazard prediction*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; A. Massa, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genova, Italy

B08:03 *Precise microwave imaging for the quantitative assessment of biological tissues*
J.T. Chang, K. Paulsen, P.M. Meany, M. Fanning, Thayer School of Engineering, Darmouth College, Hanover, USA ; K. Paulsen, Norris Cotton Cancer Center, Darmouth-Hitchock Medical Center, Lebanon, USA

B08:04 *Inversion methods in chirp radar-type microwave computed tomography*
M. Bertero, INFM and DISI, U. di Genova, Genova, Italy ; M. Miyakawa, Dpt. of Information Engineering, Niigata-shi, Japan

B08:05 *Two-dimensional profile reconstruction of biological objects based on non-linear optimization*
T.A. Maniatis, K.S. Nikita, N. Uzunoglu, Dpt. of Electrical and Computer Engineering, National Technical U. of Athens, Athens, Greece

B08:06 *Parallelisation of a newton-kantorovich reconstruction algorithm for microwave tomography*
J. Mallorqui, T. Broquetas, Dpt of Signal Theory and Communications, U. Politecnica de Catalunya, Barcelona, Spain ; N. Joachimowicz, J.Ch. Bolomey, Supelec, Gif-sur-Yvette, France

B08:07 *Microwave tomography for physiological imaging of myocardial ischemia and infarction*
S.Y. Semenov, Laser and Applied Technologies Laboratory, Carolinas Medical Center, Charlotte, NC, USA

B08:08 *Optimization of the dynamic imaging performances of a 2.45 Ghz planar microwave camera*
A. Joisel, J.Ch. Bolomey, Electromagnetic Research Dpt., Supélec, Gif-sur-Yvette, France

B08:09 *Kalman filtering in contacting microwave radiometry*
P. Tognolatti, Dpt di Ingegneria Elettrica, U. dell'Aquila, L'Aquila, Italy ; F. Bardati, DISP Roma Tor Vergata U., Roma, Italy

Session C08
Friday, July 17, AM
Frequency Domain Methods

C08:01 *Spatial domain evaluation of MoM matrix elements*
J. Parlebas, R. Schertlen, W. Wiesbeck, Inst. für Höchstfrequenztechnik und Elektronik U. of Karlsruhe, Karlsruhe, Germany

C08:02 *RCS computation using high order derivatives*
D. Volpert, ONERA CERT Dpt Traitement de l'Information et Modelisation, Toulouse, France

C08:03 *Fast algorithm applied to bem to the analysis of cutoff wavenumbers of ridged waveguides*
G. Fontgalland, Federal Centre Technological Education of Maranhao, Sao Luis, MA, Brazil ; H. Baudrand, E.N.S.E.E.I.H.T, Toulouse, France ; M. Guglielmi, European Space and Technology Center, Noordwijk, The Netherlands

C08:04 *Imroved spectral iteration technique for the scattering from metallic cylinders*
G. Di Massa, S. Costanzo, Dpt di Elettronica, Informatica e Sistemistica U. della Calabria, Arcavacata di Rende, Italy

C08:05 *Dyadic green's function in spectral domain for the analysis of multilayer cylindrical structures*
M. Thiel, A. Dreher, Deutsches Zentrum fur Luft-und Raumfahrt (DLR), Insit. fur Hochfrequenztechnik, Oberpfaffenhofen, Wessling, Germany

C08:06 *Electromagnetic field computation in axisymmetric RF structures with BEM applied to multipacting analysis*
P. Yla-Oijala, J. Sarvas, Rolf Nevanlinna Inst., U. of Helsinki, Helsinki, Finland

C08:07 *A hybrid method in the analysis of planar waveguides*
A. Büyükaksoy, Gebze Inst. of Technology Faculty of Sci., Kocaeli , Turkey

C08:08 *On the charge-modeling capabilities of a class of current basis functions*
L. Gürel, K. Sertel, I. Kürsat Sendur, Bilkent U., Dpt. of Electrical and Electronics Eng., Ankara, Turkey

C08:09 *A new method for electromagnetic simulation of UMMIC's*
J. Dai, H. F. Jin, Y. W. Jin, Y. S. Wu, Dpt. of Electronic Eng. Tianjin U., Tianjin, China

C08:10 *Time and frequency features of resonant wave scattering by waveguide open resonators*
N. P.Yashina, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine

C08:11 *The moment method in the diffraction problems by the structures consisting of coaxial circular disks*
A. N. Khizhnyak, Kharkov State Academy of Civil Engineering Dpt of Physics, Kharkov, Ukraine

C08:12 *Analysis of coaxial mounting and probe structure*
M. V. Davidovich, Saratov State Technical U., ED&ID Dpt, Saratov, Russia

Session D08
Friday, July 17, AM
Computational Electromagnetics in EMC Applications

Organisers : L. Pichon, A. Razek
Chairs : L. Pichon, A. Razek

D08:01 *Wire line modelling by the finite element method*
M. Feliziani, Dpt of Electrical Engineering, U. of l'Aquila, L'Aquila, Italy ; F. Maradei, Dpt of Electrical Engineering U. of Rome « La Sapienza », Rome Italy

D08:02 *Use of finite element method to optimise the anechoïzation of faraday box*
C. Vollaire, L. Nicolas, G. Clerc, G. Rojat, CEGELY Ecole centrale de Lyon, Ecully, France

D08:03 *EM field numerical analysis of nonperfectly shielded enclosures in time domain*
M. Feliziani, Dpt of Electrical Engineering, U. of l'Aquila, L'Aquila, Italy ; F. Maradei, Dpt of Electrical Engineering U. of Rome « La Sapienza », Rome Italy

D08:04 *Fast estimation of shielding efficiency of ferromagnetic matrial using an effective reluctivity*
D. Lederer, A. Kost, Inst. Für El. Engietechnik, TU Berlin, Berlin, Germany

D08:05 *Recent improvements of the time domain methods applied to EMC problems*
A. Reineix, B. Jecko, F. Jecko, IRCOM, Limoges, France

D08:06 *Calculation of large microwave antennas. Hybrid solution including gaussian mode analysis*
J. Deagostini, Y. Beniguel, IEEA, Coubevoie, France ; W. Tabbara, LSS, Supélec, Plateau de Moulon, Gif-sur-Yvette, France

D08:07 *3D electromagnetics with MoM on PC's*
J. P. Estienne, Matra Systeme & Information, Toulouse, France

D08:08 *Simulation of complex systems in EMC*
C. Christopoulos, Numerical Modelling Laboratory, Dpt of Electrical and Electronic Engineering U. of Nottinghan, Nottingham, UK

D08:09 *Analysis of the computational efficiency of domain decomposition using admittance matrix networks*
D. Lacour, X. Ferrieres, S. Bertuol, V. Gobin, J. P. Parmantier, ONERA, Meudon, France

D08:10 *A numerical appoach of the behaviour of a FACT component and his package submitted to an electromagnetic aggression*
G. Akoun, C. Tavernier, Aerospatiale-Suresnes, Louis Bleriot Corporate Research Center, France ; O. Coumar, Aerospatiale-Les Mureaux, Space &Defense Business Center, France

Session E11
Friday, July 17, AM
Transmissions Lines

E11:01 *Effect of ionosphere 3D-disturbance on VLF-propagation in the curved waveguide*
T.I. Bichutskaya, G. I. Makarov, St. Petersburg U., Inst. of Radiophysics, St. Petersburg, Russia

E11:02 *Analysis of planar transmission lines with floating strips*
T. N. Chang, E.E. Dpt, Tatung Inst. of Technology, Taipei, Taiwan

E11:03 *The problems of syntheses and diagnostics dielectric layer and effect of intertype coupling of own electromagnetic fielfs*
V. V. Yatsik, The A.Ya. Usikov Inst. of Radiophysics and Electronics of the National Academy of Sci. of Ukraine, Kharkov, Ukraine

E11:04 *Propagation characteristics of dielectric waveguides by multilayer gratings with periodic surface relief*
T. Yamasaki, Dpt. of Industrial Technology, Electric and Electronic Engineering, Junior College, Nihon U., Chiba, Japan ; S. Hishinuma, T. Hinata, T. Hosono, Dpt of Electrical Engineering, College of Sci. and Technology, Nihon U., Chiba, Japan

E11:05 *Finite element and finite difference methods for dielectrical waveguide problems*
A. Delitsin, A. N. Bogolyubov, A. V. Krasilnikova, A. G. Sveshnikov, Moscow State U. Physical Dpt., Mathematical Chair, Moscow, Russia

Session F06
Friday, July 17, AM
Conformal Antennas and Arrays

F06:01 *Conformal array antenna for leo observation platforms*
E. Vourch, G. Caille, ALCATEL ESPACE, Toulouse, France ; M. J. Martin, CASA, Division Espacio, Madrid, Spain ; J.R. Mosig, LEMA-EPFL - EL-ECUBLENS, Lausanne, Switzerland ; A. Martin, P. Oiversen, ESA/ESTEC P. O, Noordwijk, The Netherlands

F06:02 *Half and quarter wavelength printed antennas on a conical surface*
F. Muller, J. Lenormand, C. Terret, LSR/LAT UPRES-A CNRS 6075, Rennes, France ; T. Girard, LEAT UPRES-A CNRS 6071, Valbonne, France

F06:03 *Analysis of the rectangular microstrip patch antenna on elliptic-cylindrical substrate*
G. Amendola, G. Di Massa, U. della Calabria, Rende, Italia

F06:04 *Curvature effects on radiating characteristics of a conformal antenna of arbitrary shape*
X. Begaud, P. Poey, J.P. Daniel, U. de Rennes I, Lab. Antennes et Réseaux, Rennes, France

F06:05 *Development of a conformal, smart skin antenna utilizing waves in composite media*
D. J. Berg, Boeing Phantom Works, Mesa, USA

F06:06 *Integration of conformal, smart skin antenna assemblies into aircraft surfaces*
D. A. Wingert, Boeing Phantom Works, Mesa, USA

F06:08 *An over view of smart skin antennas*
P. PONS, C. Renard, Antenna Dpt, Dassault Electronique, Saint-Cloud, France

Session G13
Friday, July 17, AM
Microwave Components III

G13:01 *Whispering gallery mode converters*
T. Berceli, G. Reiter, G. Veszely, F. Völgyi, G. Jaro, Technical U. of Budapest, Hungary

G13:02 *The performance characterisation transferred in to the load plane for a microwave transistor*
F. Gunes, B. A. Cetiner, Yildiz Technical U., Electronics & Communication Eng.Dpt, Istanbul, Turkey

G13:03 *A neural network approach for the performance data sheets of a microwave transistor*
F. Günes, H. Topi, B. A. Cetiner, Yildiz Technical U., Electronics & Communication Eng.Dpt, Istanbul, Turkey

G13:04 *On the design of Match-Zehnder silicon waveguides for sensor applications*
B.-H. V. Borges, A. C. César, M. A. Romero, U. de Sao Paulo, Escola de Engenharia de Saos Carlos, Dpt. de Engenharia Elétrica, Sao Carlos, SP, Brazil

G13:05 *Analysis of coupled ferrite nonradiative dielectric waveguides*
A. C. César, U. de Sao Paulo, Escola de Engenharia de Saos Carlos, Dpt. de Engenharia Elétrica, Sao Carlos, SP, Brazil

G13:06 *Comparison of numerical computation results with different effective dielectric constants in planar structures*
Y. Yang, J. Lu, School of Microelectronic Engineering, Griffith U., Australia

Session G14
Friday, July 17, AM
Optical Interconnections in Electronic Systems : Design and Realization (II)
Organiser : E. Griese
Chair : E. Griese

G14:01 *Design issues for three-dimensional optoelectronic architectures*
H. Van Marck, M. Brunfaut, J. Dambre, H. Neefs, J. Van Campenhout, U. of Ghent, Dpt. of Electronics and Information Systems, Gent, Belgium

G14:02 *Waveguide-based optoelectronic interconnects using near IR EM waves*
Ray T. Chen, Microelectronics Research Center, Dpt. of Electrical and Computer Engineering, U. of Texas, Austin

G14:03 *Vertical-cavity surface-emitting laser diode arrays for parallel optical interconnects Within Multichip Modules*
R. King, R. Michalzik, R. Jäger, F. Eberhard, C. Jung, M. Grabherr, K. J. Ebeling, U. of Ulm, Optoelectronics Dpt., Ulm, Germany

G14:04 *VCSEL based optical interconnect systems*
R. K. Kostuk, S. Kemme, R. Boye, Electrical and Computer Engineering Dpt. and The Optical Sci. Center, U. of Arizona, USA

G14:05 *A finite element method with high-order hybrid triangular elements for the analysis of Inhomogeneous, Lossy And Anisotropic Waveguides*
V. Schulz, G. Mrozynski, M. Thienenkamp, U.-GH Paderborn, Theoretische Elektrotechnik, Paderborn, Germany

G14:06 *Analysis of gradient index waveguide lenses by means of the finite element method*
A. Himmler, U.-GH Paderborn, Theoretische Elektrotechnik/ C-LAB, Paderborn, Germany

Session H09
Friday, July 17, AM
Modelling Design of Millimeter Wave Antennas

Organisers : J. R. Mosig, A. Skrivervik
Chairs : J. R. Mosig, J. Citerne

H09:01 *Modeling of a novel planar integrated (SUB)MMW receiver by using an extended FDTD method*
P. de Maagt, J. Vazquez, ESA/ESTEC Noordwijk, The Netherlands ; C. Parini, P. Clarricoats, Queen Mary and Westfield College, U. of London, London, UK

H09:02 *Simulation of Integrated open structure receivers using improved spectral domain and raytracing / aperture field integration methods*
T. Vaupel, V. Hansen, U. Wuppertal, Lehrstuhl fuer Theoretische Elektrotechnik, Wuppertal, Germany

H09:03 *Influence of the source model on the analysis of slot antennas in the spectral domain*
C. Letrou, T. L. Visan, INT/EPH, Evry, France ; T. L. Visan, U. «Polithnica» of Bucharest, Bucharest, Romania

H09:04 *Cavity effects on printed antenna performance*
R.C. Hall, D. Zheng, Ansoft Corporation, Boulder Microwave Division, Boulder, USA

Session H10
Friday, July 17, AM
Dipole And Wire Antennas

H10:01 *A new broad band resistive wire antenna for ultra-wide-band applications*
Y. IMBS, Y. Chevalier, B. Beillard, J. Andrieu, M. Jouvet, B. Jecko, I.R.C.O.M., Brive, France ; M. Le Goff, E. Legros, CELAR (DGA), Bruz, France

H10:02 *Excitation and efficiency of electrically small plasma antennas*
J. R. James, I. Morrow, Dpt. of Aerospace, The Royal Military College of Sci., Cranfield U., Swindon, UK

H10:03 *Comparative methods of solution for input impedance characteristics of truncated conical dipole by moment method and Hallen integral equation*
C. Das Gupta, Senior Member IEEE, Dpt of Electrical Engg, IIT, Kanpur ; P. C. Das Professor, Dpt of Mathematics, IIT, Kanpur ; A. K. Gogoi, Dpt of Electronics Engineering, Gauhati, Assam, India

H10:04 *Theory of biconical dipole antennas*
L.J Voinova, S.I Eminov, Novgorod State U. by Y.Mudry, Dpt of the Theoretical and Special Physics, St Petersburg, Russia

H10:05 *Band properties of dipole antennas near to ground*
V.V Artemiev, S.I Eminov, Novgorod State U. by Y.Mudry, Dpt of the Theoretical and Special Physics,St Petersburg, Russia

H10:06 *The synthesis of the linear continuous antennas with patterns without side lobes*
N.N.Gorobets, O. N. Nosenko, Dpt of Applied Electrodynamic Kharkov State U., Kharkov, Ukraine

H10:07 *Experimental proof that dc field sensor operation conforms with antenna theory*
B. Z. Kaplan, U. Suissa, Dpt. of Electrical and Computer Engineering, Ben-Gurion U. of the Negev, Beer-Sheva, Israël

H10:08 *Mathematical model of strip dipole antenna on stratified substructure*
Selin Victor I, Obninsk, Russia

H10:09 *Input impedance of loaded wire antenna in the presence of a lossy half-space*
D. Poljak, V. Roje, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Dpt. of Electronics, U. of Split, Split, Croatia

J. I. P. R. 4 - Session I09
Friday, July 17, AM 08:40-12:20
Joint European Community-Commonwealth of Independant States
EC-CIS Polarimetry Projects

Organisers : L. Ligthart and V.N. Tatarinov
Chairs : L. Ligthart and V.N. Tatarinov

I09:01 *Joint Russian-Dutch polarimetric radar projects (1)*
(Overview) *a) Polarization properties of distributed radar targets*
V.N. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES, Tomsk, Russia. ; L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.

b) Frequency averaging of polarization speckle - effect for stable description of scattered signals
S.V. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES, Tomsk, Russia. ; L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.

I09:02 *Polarization properties of complex radar objects having random distribution of the scattering centers*
L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands. ; V.N. Tatarinov, S. V. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES, Tomsk, Russia.

I09:03 *Doppler-polarimetric radar measurements of precipitation*
C. M. H. Unal, L. Ligthart, Delft University of Technology, International Research Center for Telecommunications - Transmission and Radar, The Netherlands.

I09:04 *Joint Russian-Dutch polarimetric radar projects (2)*
(Overview) *a) Theoretical modeling of microwave scattering*
b) Polarimetric method for measuring and visualizing permittivity characteristics of earth surface
A. I. Kozlov, A. I. Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia ; L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.

I09:05 *IRCTR activities in modeling of electromagnetic wave transmission through air-ground interface*
A.G . Yarovoy, R. V. De Jongh, L. Ligthart, Delft University of Technology, International Research Center for Telecommunications - Transmission and Radar, The Netherlands.

I09:06 *Joint Russian-French polarimetric radar projects*
(Overview) *a) One channel surveillance multiparametric polarization radar for experimental investigations*
b) Rejection comb filtering as method of polarization invariants measurements for surveillance polarization radar
S. V. Tatarinov, V.N. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES, Tomsk, Russia. ; J. Saillard, E. Pottier, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

I09:07 *Scattering matrix radar parameters: the one-channel polarization radar theory*
E.V. Masalov, O. S. Korenkov, Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia.

Session J10
Friday, July 17, AM
Classification of Synthetic Aperture Radar Images

Organiser : S. Quegan
Chairs : S. Quegan, C. J. Oliver

J10:01 *Information from SAR texture*
C. J. Oliver, DERA, Malvern,UK

J10:02 *A rigorous analysis of the information content of ERS-SAR images*
S. Hawlitschka, M. Hamacher, W. Kühbauch, University of Bonn, Germany

J10:03 *Supervised vs. unsupervised interpretation of polarimetric SAR imagery using model regularisation*
P. C. Smits, S. Dellepiane, University of Genoa, Italy

J10:04 *Supervised classification of targets in alpine terrain based on multiparameter SAR data*
D. Floricioiu, H. Rott, Inst. of Meteorology and Geophysics, U. of Innsbruck, Austria

J10:05 *Fuzzy C-means segmentation of land-covers in interferometric SAR images*
P. B.G. Dammert, S. Kühlmann, J. Askne, G. Smith, Dept of Radio and Space Science, Chalmers University of Technology, Gothenburg

J10:06 *Unsupervised classification scheme and topography derivation of Polsar data based on the « H / A / a » polarimetric decomposition theorem*
E. Pottier, Laboratoire SEI/OS - EP CNRS 63 IRESTE, Nantes, France

J10:07 *Investigating the electromagnetic rationale of radar classification capability*
P. Ferrazzoli, L. Guerriro, C. Pastorelli, G. Schiavon, Università Tor Vergata, DISP, Roma, Italy

J10:08 *Knowledge-based classification of agricultural crops using SIR-C polarimetric data*
M. Davidson, N. Floury, T. Le Toan, Centre d'Etudes de la Biosphere, Toulouse, France; R. Steingießer, W. Kübauch, Instit. für Pflanzenbau, Bonn, Germany

Session K08
Friday, July 17, AM
Parabolic Equation Techniques for Wave Propagation

Organiser : M. F. Levy
Chair : M. F. Levy, J. Kuttler

K08:01 *Parabolic approximation of acoustic fields in an ocean over a poroelastic seabed*
J. Buchanan, Dpt of Mathematics, United States Naval Academy, Annapolis, Maryland, USA ; R.P. Gilbert, Dpt of Mathematical Sci., U. of Delaware, Netwark, Delaware, USA

K08:02 *A three-dimensional, two-way IFD PE model for the forward and backward underwater sound propagation*
D. Zhu, L. Bjorno, Dpt. of Industrial Acoustics, Technical U. of Denmark, Lyngby, Denmark

K08:03 *PE algorithm for holographic object localization*
A.V.Popov, V. S. Arefiev, V. A. Vinogradov, Inst. of Terrestrial Magnetism, Ionosphere and Radiowave Prapagation, Moscow region, Russia

K08:04 *The parabolic equation/Fourier split-step method applied to two canonical problems*
J. R. Kuttler, G. D. Dockery, The Johns Hopkins U., Applied Physics Laboratory, Laurel, MD, USA

K08:05 *Modeling refractive effects on infrared (IR) transmission paths using the parabolic equation*
A. Barrios, Propagation Division Spawarsyscen San Diego, San Diego, CA, USA

K08:06 *Validation of models for rough surface ducting cases*
H. V. Hitney, Space and Naval Warfare Systems Center, San Diego, CA, USA

K08:07 *Tropospheric refractivity estimation using radar clutter from the sea surface*
J. Krolik, S. Vasudevan, J. Tabrikian, Dpt of Electrical and Computer Engineering Duke U., Durham, NC, USA ; L. T. Rogers, C. Hattan, Propagation division Space and Naval Warfare Systems Center, San Diago, CA, USA

K08:08 *Remote sensing of evaporation and surface ducts*
J. Claverie, P; Delaunay, Centre de Recherches des Ecoles de Coëtquidan, Guer, France

K08:09 *Marching methods for electromagnetic scattering calculations*
A.A. Zaporozhets, M. F. Levy, Radio Communications Research Unit, Rutherford Appleton Laboratory, Didcot, OX, UK ; A. G. Voronovich, NOAA/ER/ETL, R/E/ET1, Boulder, CO, USA

K08:10 *Applications of a parabolic equation scattering technique*
M.F. Levy, A. A. Zaporozhets, Radio Communications Research Unit, Rutherford Appleton Laboratory, Oxon, UK ; M. D. Collins, Naval Research Laboratory, Washington, DC, USA

Session L10
Friday, July 17, AM
CEM

L10:01 *Correlation of measurements on different sites using the GPOF method*
B. Fourestié, Z. Altman, J. Wiart, A. Azoulay, C.N.E.T. D.M.R./R.M.C, Issy-les-Moulineaux, France

L10:02 *Electromagnetic compatibility of radioelectronic devices with mechanical system*
G.A Milonov, V.A Gandurin, Moscow Scientific Research Inst. of Instrument Engeneering, Moscow, Russia

L10:03 *Modified six port TEM cell for generating standard electromagnetic fields*
J.M.Ko, J. H. Yun, S. C. Kong, J. K. Kim, Dpt of Electronic Engineering, Chung-Ang U., Seoul, Republic of Korea

L10:04 *Anti-shielding effect of a cylindrical grid of metal wires*
V. Yurchneko, , Inst. of Radiophysics and Electronics National Academy of Sci. Kharkov ; A. Altintas, V. Yurchneko, Bikent Univ., Dpt. of Electrical and Electronics Engineering, Ankara, Turkey

L10:05 *Thin wall shielding: a comparison of approximate and exact solutions*
E. Baum, FG Grundlagen der Elektrotechnik, FB Elektrotechnik, Fachhochschule Fulda, Fulda ; G. Mrozynski, Institute of Electromagnetic Theory, U. of Paderborn, Germany.

Session L12
Friday, July 17, AM
Sensors : Radar and Radiometer I

L12:01 *Naval special warfare PMMW data collection results*
B. Blume, Nichols Research Corporation, Panama City, FL ; J. Wood, F. Downs, Naval Coastal Systems Station, Panama City, FL, USA

L12:02 *Passive millimeter wave imaging device for naval special warfare*
F. Downs, Coastal Systems Station Dahlgren Division, Naval Surface Warfare Center, Panama City, FL, USA

L12:03 *3D Migration/Array processing using GPR data*
M. L. Moran, USA Cold Regions Research and Engineering Lab, Hanover, NH, USA

L12:04 *Periodically grooved conical dielectric feeder for millimeter wave system applications*
C. Das Gupta, Dpt of Electrical Engg, Indian Inst. of Technology, Kanpur ; A. Kumar, Dpt of Electronics Engg. Assam Engineering College, Gauhati, Assam, India

L12:05 *Point-matching technique for computation of magnetic field perturbation by finite lenght crack in high sensitivity ACFM technique*
D. Mirshekar-Syahkal, R. F. Mostafavi, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK

L12:06 *Recent advances in high sensitivity ac field measurement for electromagnetic non-destructive evaluation*
D. Mirshekar-Syahkal, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK

L12:07 *Accordinative study between the vertical electrical sounding and TEM methods for exploring groundwater along Cairo-Alexandria road (Egypt)*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt

L12:08 *The exploration of the groundwater aquifer by using TEM & VES methods in the southern part of the Nile Delta*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt

L12:09 *A Fast multilevel algorithm for radar imaging*
A. Boag, S. Shammas, Israel Aicraft Industries, Dpt. 4483, Ben-Gurion Airport, Israel

Session M08
Friday, July 17, AM
Dielectric Measurements on Low Loss Crystals
Workshop on Complex Media and Measurement Techniques
Organiser : J. Baker-Jarvis
Chairs : J. Baker-Jarvis , J. Krupka

M08:01 *Dielectric characterization of low-loss materials : a comparison of techniques*
J. Baker-Jarvis, M. D. Janezic, National Inst. of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA

M08:02 *Dielectric properties of extremely low loss single crystal dielectrics at cryogenic temperatures*
J. Krupka, Inst. Mikroelektroniki i Optoelektroniki PW, Warszawa, Poland ; K. Derzakowski, Inst. Radioelektroniki PW, Warszawa ; M. Tobar, Dpt of Physics, U. of Western Australia, Nedlands, WA, Australia ; R. G. Geyer, National Institute of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA

M08:03 *Cryogenic dielectric resonators and their applications*
N. Klein, I. S. Ghosh, S. Schornstein, C. Zuccaro, Forschungszentrum Jülich, Institut für Festkörperforschung, Jülich, Germany ; L. Hao, J. Gallop, National Physical Laboratory, Teddington, UK

M08:04 *High Q liquid helium cooled dielectric resonators and measurement applications*
J. C. Gallop, L. Hao, C. D. Langham, National Physical Laboratory, Teddington, UK ; N. Klein, I. S. Ghosh, Forschungzentrum Jülich, Inst. für Festkörperforschung, Jülich, Germany

M08:05 *Measurements of doped and composite low loss single crystal dielectric resonators for secondary frequency standards*
M.E. Tobar, J. G. Hartnett, A. G. Mann, E. N. Ivanov, Dpt. of Physics, U. of Western Australia, Nedlands, WA, Australia ; J. Krupka, Inst. Mikroelektroniki i Optoelektroniki PW, Warszawa, Poland ; R. G. Geyer, National Instit. of Standars and Technology, Electromagnetics Fields Division, Boulder, CO, USA

M08:06 *Overview of theoretical background for dielectric measurements on low-loss crystals*
J. Baker-Jarvis, National Inst. of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA

Session A11
Friday, July 17, PM
Diffraction and Electromagnetic Waves

A11:01 *Diffraction of a flath H-polarized wave on a slot under magnetic-dielectric cover*
V.L Danilchuk, Novgorod State U., Dpt of the Theoretical and Special Physics, Novgorod, Russia

A11:02 *Diffraction of the plane wave by a soft and hard strip*
C. Yildiz, Erciyes University, Engineering Faculty, Electronical Engineering Dpt, Kayseri, Turkey

A11:03 *Electromagnetic returns from dielectric media with embedded wires*
R. D. Bardo, R. Chen, E. C. Fischer, P. Sarman, Naval Surface Warfare Center, Carderock Division, West Bethesda, MD, USA ; H. U berall, Also at Dpt of Physics, Catholic U., Washington, DC, USA

A11:04 *Diffraction by screens with two and three dimensional hollows*
V. V. Lozhechko, Yu. V. Shestopalov, Dpt. of Computational Mathematics and Cybernetics, Moscow State U., Moscow, Russia

A11:05 *A General theory of diffraction by perfectly conducting capacitive grids*
L. C. Botten, School of Mathematical Sci. U. of Technology, Sydney, Australia, R. C. Mc Phedran, N. A. Nicorovici, School of Physics, U. of Sydney, Australia

A11:06 *High frequency difraction by an open ended parallel plate waveguide cavity with impedance walls*
A. Buyukaksoy, Faculty of Sci. Gebze Inst. of Technology, Kocaeli, Turkey ; F. Günes, B. A. Cetiner, Yildiz Technical U., Electronics & Communication Eng.Dpt, Istanbul, Turkey

A11:07 *The model synthesis of quasioptical systems with selective gratings-mirrors*
Yu.K.Sirenko, L. G. Velichko, Inst. of Radiophysics and Electronics, National Academy of Sci. of Ukraine, Kharkov, Ukraine

A11:08 *A model problem for side-lobe blockage of radiofrequency radiation*
E. Vinogradova, P. D. Smith, Dpt. of Mathematics, U. of Dundee, Scotland, UK

Session A12
Friday, July 17, PM
Electromagnetic Formulation

A12:01 *General multidimensional integral equation for design of microwave planar structures*
M. V. Davidovich, Saratov State Technical U., ED& ID Dpt, Saratov, Russia

A12:02 *Fractionalization of kernels for electromagnetic intermediate-zone fields in cylindrical and spherical geometries*
N. Engheta, Moore School of Electrical Engineering, U. of Pennsylvania, Philadelphia, Pennsylvania, USA

A12:03 *Fractional paradigm in electromagnetism*
N. Engheta, Moore School of Electrical Engineering, U. of Pennsylvania, Philadelphia, Pennsylvania, USA

A12:04 *An alternate characteristic equation for a cylindrical dielectric waveguide*
M. J. Lahart, Army Research Laboratory, Adelphi, MD, USA

A12:05 *Comparison of eddy currents computation by H formulation and by E formulation*
M. Djennah, A. Brahim, U.E.R Systèmes Electromagnetiques, Ecole Militaire Polytechnique, Alger, Algerie

A12:06 *A reflection of electromagnetic wave from a smoothing transitional layer*
A.V. Samokhin, Moscow State Technical U. of Civil Aviation, Moscow, Russia

Session B09
Friday, July 17, PM
Scattering II

B09:01 *Angular variation of diffuse scatter from discrete inhomogeneities in terrestrial and icy surfaces : results from 3-D FDTD simulations*
J.E. Baron, Center for Radar Astronomy, Stanford U., Stanford, CA, USA

B09:02 *Improved modelling for scattering and emissivity of clouds*
E. Aydemir, Turkish Air Force Academy, Istanbul, Turkey ; S. Seker, Bogazici U. Istanbul, Turkey

B09:03 *Scattering models for the Rice crop growth monitoring*
Y. Shao, J. Li, Inst. of Remote Sensing Applications Chinese Academy of Sci., Beijing, China

B09:05 *3-D scene modeling and remote sensing applications*
W. Qin, Biospheric Sciences Branch NASA Goddard Space Flight Center, Greenbelt, MD, USA

B09:06 *Angle-resolved ellipsometry of light scattering for separating surface and bulk effects*
H. Giovannini, C. Amra, C. Deunié, Laboratoire d'Optique des Surfaces et des Couches Minces, Ecole Nationale Superieure de Physique de Marseille, Marseille, France

B09:07 *Exact model for scattering from periodic rough surfaces*
D. Kasilingam, Dpt of Electrical & Computer Engineering U. of Massachusetts, North Dartmouth, MA, USA

B09:08 *Scattering from natural rough surfaces described by the FBM fractal model*
G. Franceschetti, A. Iodice, D. Riccio, U. di Napoli Frederico II, Dpt di Ingegnera Elettronica, Napoli, Italia ; G. Franceschetti, Consiglio Nazionale delle Ricerche IRECE, Napoli, Italy ; M. Migliaccio, Ist. U. Navale, Ist. Teoria e Tecnica delle Onde Electromagnetiche, Napoli, Italy

B09:09 *Radiative transfer in the atmosphere-ocean system : the finite element method*
L. Roberti, B. Bulgarelli, Dip. Di Elettronica, Politenico di Torino, Torino, Italy ; V. B. Kisselev, St Petersburg Inst. for Informatic and Automation of the Academy of Sci. of Russia, St Petersburg, Russia

B09:10 *Non destructive testing of heterogeneous structures with a step frequency radar*
V. Cattin, J.-J. Chaillout, CEA Grenoble LETI Laboratoire d'Electronique de Technologie et d'Instrumentation Dpt Systèmes - Service Capteurs et Systèmes pour la Magnétométrie et l'Electromagnétisme, Grenoble, France

B09:11 *Numerical analysis of radar scattering from turbulent flows and rough bodies of rotation*
V.G. Spitsyn, Siberian Phisical and Technical Inst. Tomsk State U., Tomsk, Russia

B09:12 *Application of a wave interference of two different frequencies for detection of the cylindrical object buried in dielectric half-space*
A. A. Vertiy, S. P. Gavrilov, Tubitak-MRC, Turkish-Ukrainian Joint Research Laboratory, Gebze-Kocaeli, Turkey ; A. A. Vertiy, S. P. Gavrilov, IRE, National, Academy of Sci. of Ukraine, Kharkov, Ukraine ; A. A. Vertiy, S. P. Gavrilov, State Research Center « Fonon », Kiev, Ukraine

Session C09
Friday, July 17, PM
The Methods of Lines for Computational Electromagnetics

Organisers : R. Pregla, W. Pasher
Chairs : R. Pregla, W. Pasher

C09:01 *New developments in the method of lines*
(Overview) R. Pregla, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany

C09:02 *Electromagnetic, modelling of microwave sructures and flter design with the method of lines*
P. Valade, D. Cros, I.R.C.O.M. - Faculté des Sci., Limoges, France

C09:03 *The moL - a competitive analysis tool for filters?*
L. Vietzorreck, Lehrstuhl für Hochfrequenztechnik Technische Universität München, München, Germany ; R. Pegla, Allegemine und Theoretische Elecktrotechnik, FERNU., Hagen, Germany

C09:04 *Scattering of a finite elliptic cylinder by a combination of moL and generalized multipole technique*
W. Pascher, Allgemeine und Theoretische Elektrotechnik FernU., Hagen, Germany, P. Leuchtmann, Allgemeine und Theoretische Elektrotechnik FernU., Hagen, Germany

C09:05 *Shielding of two broadside coupled single microstrip lines by a non-ideal metallic layer*
Hans-Georg Bergandt, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany

C09:06 *Analysis of a shielding structure using the method of lines coupled with the mode-matching method*
H.-H. Chen, S.-J. Chung, Dpt. of Communication Eng., Nat'l Chiao Tung U., Hsinchu, Taiwan, ROC

C09:07 *Optical pulse propagation in nolinear quadratic materials*
C. Sibilia, M. Di Vito, R. Cerioni, M. Bertolotti, Dpt di Energetica, U. di Roma "La Sapienza", Roma, Italy

C09:08 *Modeling high-speed optoelectronic and microwave radiative components using the method of lines*
P. Berini, EITI - Ecole d'Ingenierie et de Technologie de l'information, U. d'Ottawa, Ottawa, Ontario, Canada ; K. Wu, Dpt de Génie Electrique et de Génie Informatique, Ecole Polytechnique de Montréal, Montréal, Canada

C09:09 *Efficient analysis of planar MMICs printed on anisotropic substrates using the method of lines*
Y. Chen, Dpt of Electrinic Engineering, Hong Kong Polytechnic U., Hong Kong ; B. Beker, Dpt of Electrical and Computer Engineering U. of South Carolina, Columbia, USA

C09:10 *Rigorous analysis of non-homogeneous gyrotropic waveguides by the method of lines*
Siegbert Martin, Bosch Telecom GmbH, Public Networks, Backnang, Germany; R. Pregla, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany

C09:11 *New capabilities of method of lines to characterize planar antennas with finite substrate*
M. Drissi, P. Hervé, J. Citerne, INSA/LCST, UPRES-A 6075, Rennes, France

Session D09
Friday, July 17, PM
Advanced Topics in FDTD

Organiser : B. Jecko
Chairs : B. Jecko, F. Jecko

D09:01 *Matrix formulation for analysis and design of synthetic linear and non linear materials*
R.W. Ziolkowski, F. Auzanneau

D09:03 *The use of the FDTD method to simulate a smart antenna in an indoor environment*
J. Litva

D09:04 *Making use of FDTD-PML in electromagnetic compatibility*
J.-P. Berenger, Centre d'Analyse de Defense, Arcueil, France

D09:05 *Implementation of lumped circuits in FDTD codes*
A. Reinex, B. Jecko, IRCOM-UMR CNRS 6615, Equipe Electromagnetisme, Faculte des Sci., Limoges, France ;
L. Auzereau, J. P. Seaux, CEA CESTA, Le Barp, France

D09:06 *Introduction of a new model of partially magnetized ferrite material in a FDTD code. Application to non saturated ferrite devices*
Th. Monediere, F. Jecko, K. Berthou-Pichavant, Ph. Gelin

D09:07 *FDTD simulation of microwave circuits with nonlinear and active elements*
B. Houshmand, M. Chen, K.P. Ma, T. Itoh, U. of California at Los Angeles, Los Angeles, USA

Session E12
Friday, July 17, PM
Signal Processing

E12:01 *Target enhancement for marine radar video signals by spatial frequency filters*
K. Arai, Y. Watanabe, Dpt. of Electrical & Electronics Engineering, Nippon Inst. of Technology, Saitama-ken, Japan

E12:02 *Extracting the frequency dependence of close scatterers*
G. Poulalion, S. Morvan, CEA/ CESTA, DEV/SFUR/GMMS, Le Barp, France

E12:03 *A signal processing analogue of phase screen scattering*
E. Jakeman, Dpt of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK ; K. D. Ridley, Defence Evaluation and Research Agency, Worcestershire, UK

E12:04 *Corrected Monopulse Methods for Adaptive Arrays*
U. Nickel, FGAN-FFM, Wachtberg, Germany

E12:05 *Fast Modeling of Induction Responses Using Fourier Analysis of Geometric Factor*
L. Tabarovsky, Z. Jericevic, M. Rabinovich, Western Atlas Logging Services, Western Atlas International, Houston, TX, USA

E12:06 *An Efficient Approach for the Computation of the Modal Spectrum of Ridged Rectangular Waveguides*
V. E. Boria Esbert, S. Cogollos, A. Vidal, H. Esteban, Dpt de Comunicaciones U. Politécnica de Valencia, Valencia, Spain

E12:07 *Ultrasonic and infrared based sensor fusion and navigation*
L. Yenilmez, H. Temeltas, Faculty of Electronics Air force Academy, Istanbul, Turkey

E12:08 *The Numerical Method using operator weights for solution of operator equations arising in electromagnetic problems*
K.-D. Choi, J.-Ki Kim, Dpt of Electronic Engineering, Chung-Ang U., Seoul, Republic of Korea

E12:09 *Robust pipe recognition in ground penetrating radar data*
P. Gamba, Dpt di Elettronica, U. di Pavia, Pavia, Italy

E12:10 *Restoration of the signal form with using of the invariance property*
O. V. Stoukatch, I.V. Stoukatchev, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

E12:11 *The Analytical Signal for the Radio Pulse with Rectangular Envelope*
Ilya D. Zolotarev, Omsk State Engineering U., Omsk, Russia

E12:12 *The image's segmentation on a basis of a fractals dimension and logic linkage*
Y. V. Martishevsky, Tomsk State Academy of Control System and Radioelektronics (TASCR), Tomsk, Russia

E12:13 *Atomic functions and its applications to tasks of signal processing and boundary value problems*
V. Kravchenko, Inst. of Radio Engineering and Electronics of the Russian Academy of Sci., Moscow, Russia ;
V. A. Rvachev, Zhukovskii Inst. of Aviation, Kharkov, Ukraine

Session F09
Friday, July 17, PM
Antennas for Mobile Communication Systems

Organiser : T. B. Vu
Chairs : T. B. Vu, S. Choi

F09:01 *Variable radiation pattern of helix antennas*
H. Kawakami, Y. Iitsuka, S. Kogiso, G. Sato, Antenna Giken Co, Omiya, Japan

F09:02 *Adaptive antenna design for indoor radio PCS systems*
J.-G. Wang, A. S. Mohan, Faculty of Engineering, U. of Technology, Sydney, Australia

F09:03 *Combined adaptative space-time MMSE receivers for interference suppression in DS/CDMA*
V. D. Pham, T. B. Vu, School of Electrical Engineering, The U. of New South Wales, Sydney, Australia

F09:04 *Antenna array for signal estimation in DS-CDMA mobile systems*
B. Xu, T. B. Vu, School of Electrical Engineering, The U. of New South Wales, Sydney, Australia

F09:05 *A New-space-time equalizer for mobile communications*
H. Chen, T. B. Vu, Dpt. of Communications, School of Electrical Engineering, U. of New South Wales, Sydney, Australia

F09:06 *Antenna size reduction for mobile communication systems*
B. Desplanches, A. Sharaiha, C. Terret, LSR/LAT UPRES-A 6075 U. de Rennes 1, Rennes., France ; J. F. Diouris, LSEI EP CNRS 63, Nantes, France

F09:07 *A Novel adaptive beamforming algorithm based on power series method for a smart antenna system in CDMA mobile communications*
S. Choi, Dpt. of Electronic Communication, Hanyang U., Seoul, Korea

F09:08 *The effects of mutual coupling and diffraction for adaptive array performance*
K. Hirasawa, Inst. of Information Sci. and Electronics, U. of Tsukuba, Ibaraki, Japan

F09:09 *A circularly polarized S-type printed dipole antenna*
H. Morishita, Dpt of Electrical Engineering, National Defense Academy, Kanagawa, Japan

Session G15
Friday, July 17, PM
Microwave Components IV

G15:01 *Microwave properties of ferroelectric (Ba,Sr)TiO3 varactors at high microwave power and under video voltage pulses*
A.B.Kozyrev, A. V. Ivanov, O. I. Soldattenkov, St. Petersburg Electrotechnical U., St. Petersburg, Russia ;
G. A. Koepf, C. H. Mueller, T. V. Rivkin, Superconducting Core Technologies Inc; Golden, USA

G15:02 *Optimization of band properties of a short impedance vibrator on the basis of the complex analysis*
V.L Danilchuk, Novgorod State U., Dpt of the Theoretical and Special Physics, Novgorod Russia

G15:03 *Fourier transformation of electromagnetic fields in to opened waveguided structures in classes of distributions of slow growth*
N.B.Pleshchinskii, D. N. Tumkov, Kazan State U., Kazan, Russia

G15:04 *Peculiarities of light propagation in four layer step and gradient waveguides*
D.I. Sementsov, A. M. Shuty, D. G. Sannikov, A. V. Kazakevich, Ulyanovsk State U., Ulyanovsk, Russia

G15:05 *High Q microwave and MM-Wave resonnators with rarefied spectrum of eigen oscillations*
V.A. Karpovitch, V. N. Rodionova, Inst. for Nuclear Problems of Belorussian State U., Republic of Belarus, Minsk

Session H11
Friday, July 17, PM
Antenna and Signal Processing
Organiser : S. Skulkin
Chairs : S. Skulkin, J.F. Diouris

H11:01 *Binary object identification and reconstruction by using neural network processing of inverse scattering data*
M. N. Rychagov, Moscow Inst. of Electronic Engineering, Moscow, Russia ; B. Duchene, Laboratoire des Signaux et Systèmes, CNRS-SUPELEC, Gif-sur-Yvette, France

H11:02 *Robust beamforming in adaptive antenna arrays*
A. B. Gershman, Signal Theory Group, Ruhr U., Bochum, Germany

H11:03 *Properties of polarisation components of transient near-field radiated from a parabolic reflector antenna*
S. P. Skulkin, S. M. Kashaev, Radiophysical Researcch Institute (NIRFI), Nizhny Novgorod, Russia

H11:04 *Basics of low-cost time-domain antenna measurements and experience of antenna measurements without anechoic chambers*
D. M. Ponomarev, V. Proshin, K. Nikashov, Scientific-Research company MERA, Novgorod, Russia

H11:05 *Antenna charge model and it's application to wire antenna synthesis*
D. Ponomarev, I. Kovalev, K. Nikashov, Sci.-Research company MERA, Novgorod, Russia

H11:06 *Bi-polar near-field antenna measurements with synthesized short radio pulse*
A. V. Kalinin, Radiophysical Research Inst. (NIRFI), Nizhny Novgorod, Russia

H11:07 *Inclusion of constant electromagnetic power into oscillating circuit with unsettled dielectric parameters in condensor*
A.L.Gutman, Voronezh State Forestry Engineering Academy , Dpt of Physics, Voronezh, Russia

H11:08 *Electromagnetic wave scattering at High Harmonics by antennas with a nonlinear load*
A. A. Gorbachev, T. M. Zaboronkova, Radiophysical Research Inst., (NIRFI), Nizhny Novgorod, Russia

H11:09 *Statistical Aspects of the Theory of Antenna Measurements*
Y. S. Shifrin, V. A. Usin*, Kharkov Techn. U. of Radioelectronics, Kharkov,Ukraine

J. I. P. R. 4 - Session I10
Friday, July 16, PM 13:40-17:20
Polarization Effects Modeling by Scattering Radiowaves and Surfaces
Organiser : A.I. Kozlov
Chairs : A.I. Kozlov and A.I. Logvin

I10:01 *Modeling of reflected radar signals in dependence of surface influence*
(Overview) A. I. Kozlov, A. I. Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia
L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.

I10:02 *An investigation of the returned polarization characteristics of terrain*
A. E. Filippov, V. V. Tsutskov, A. I. Zakharov, The Moscow State Technical University of Civil Aviation, Moscow, Russia

I10:03 *Classification of radar targets according to the scattering matrix invariants*
V. V. Tsutskov, A. E. Filippov, A. I. Zakharov, The Moscow State Technical University of Civil Aviation, Moscow, Russia

I10:04 *The increase of radar contrast by polarization processing methods*
V. V. Tsutskov, A. E. Filippov, A. I. Zakharov, The Moscow State Technical University of Civil Aviation, Moscow, Russia

I10:05 *Electrodynamic modeling of angular noise in dependence of radiowave polarization*
(Overview) A. I. Logvin, A. I. Kozlov, The Moscow State Technical University of Civil Aviation, Moscow, Russia L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.

I10:06 *About opportunities of the radar targets detection by palarizable anisotropy index*
Y.B Pavlovsky, A.I Kozlov, A.I Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia

I10:07 *The radar targets on a background of forestry tracts detection characteristics*
A.V Prochorov, A.I Kozlov, A.I Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia

I10:08 *Statistical properties of radar target scattering matrix elements (distribution module and phase)*
V. N. Moiseyenko, D. R. Fedoseyev, The Moscow State Technical University of Civil Aviation, Moscow, Russia

Session J11
Friday, July 17, PM
VHF Band SAR
Organiser : L. Ulander
Chairs : L. Ulander, M. Imhoff

J11:01 *Improved spatial sampling using a frequency hopping ground penetrating radar*
E. S. Eide, Inst. for teleteknikk Norwegian U. of Sci. and Technology, Trondheim, Norway

J11:02 *CARABAS observations of pine and spruce forests*
G. Smith, Remote Sensing Group Dpt of Radio and Space Sci. Chalmers U. of Technology, Göteborg, Sweden

J11:03 *Estimation of forest stem volume using CARABAS-II VHF SAR data*
J.E.S. Franssoni, Swedish U. of Agricultural Sci. Dpt of Forest Resource Management and Geomatics, Umeå, S weden ; P. O. Frölind, A. Gustavsson, L. M. H. Ulander, Swedish Defence Research Establishment, CARABAS Laboratory, Linköping, Sweden ; F. Walter, Swedish U. of Agricultural Sci., Uppsala, Sweden

J11:04 *Boreal forest detection by CARABAS*
A.T. Manninen, VTT Automation, Remote Sensing, VTT, Finland

J11:05 *VHF-band SAR image simulations of objects above ground using FDTD*
L.M.H. Ulander, T. Martin, Swedish Defence Research Establishment (FOA), Linköping, Sweden

J11:06 *An airborne low frequency radar sensor for vegetation biomass measurement: initial results from big thicket forest preserve Texas, USA*
M. L. Imhoff, NASA Goddard Space Flight Center, Greenbelt, USA ; W. Lawrance,, Bowie State U., Bowie Maryland, USA ; P. Johnson, W. Holford, J. Hyer, L. May, Zimmerman Associates Inc, Vienna, USA ; P. Harcombe, Dpt of Ecology and Evolutionary Biology, Rice U., Houston, Texas, USA

J11:07 *Two-dimensional adaptive compensation for ionosphere destructive effect on resolution of VHF space-borne SAR*
V.B Shteinshleiger, A. V. Dzenkevich, V. Yu. Manakov, L. Ya. Melnikov, G. S. Misezhnikov, The Moscow Sci. Research Inst. of Instrument Engineering, Moscow, Russia

J11:08 *Application of multi-frequency SAR system operating AT X,L,P and VHF bands for remote sensing*
A. Dzenkevich, V. Manakov, L. Mel'nikov, V. Plyuschev, MNIIP, Moscow, Russia ; B.Kutuza, A. Kalinkevitch, IRE RAN, Moscow, Russia ; V. Tchernook, PINRO, Murmansk, Russia ; M. Shubina, BNIIKAM, Saint-Peterburg, Russia

J11:09 *Exploitation background of the airborne VHF SAR as four-frequency radar complex Mars component for sea surface, sea ice and land monitoring*
V.N. Tsymbal, A. S. Kurekin, A. S. Gavrilenko, Kalmykov Center for Radiophysical Sensing of the Earth, Kharkov,Ukraine

J11:10 *Results of sea surface radar souding in 150 MHz band*
V.A.Butko, B. M. Egorov, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

Session K09
Friday, July 17, PM
Indoor and Outdoor Propagation
Organiser : H.T. Chuah
Chairs : H.T. Chuah, M.S. Leong

K09:01 *Fading statistics in the shadowed region of a tree*
O. Siddiqui, S. Tjuatja, Wave Scattering Research Center, U. of Texas at Arlington, Arlington, TX, USA

K09:02 *Analysis of radio-wave propagation in a four-layered anisotropic forest*
L. W. Li, J. H. Koh, T. S. Yeo, M. S. Leong, P. S. Kooi, Communications de Microwave Division, Dpt. of Electrical Engineering, National U. of Singapore, Singapore, Russia

K09:03 *Propagation measurements and modelling for an indoor wireless communication systems*
S.Y. Tan, H. S. Tan, School of Electrical and Electronic Engineering, Nanyang Technological U., Singapore, Russia

K09:04 *Radio propagation measurements and modeling*
W. J. Lee, Y. S. Chen, K. S. Chen, Center for Space and Remote Sensing Research, National Central U., Chung-Li, Taiwan

K09:05 *Indoor propagation measurements in various office and laboratory environments*
C.H. Tek, H. T. Chuah, Faculty of Engineering, U. Telekom, Melaka, Malaysia

K09:06 *Precise 3D based on ray launching application in urban propagation*
M. Stanislawiak, S. Baranowski, P. Degauque, U. de Lille, Villeneuve d'Ascq, France

K09:07 *A ray tracing code for radioelectric coverage in urban areas*
C. Vittoli, L. Pisani, CRS4 - Centre for Advanced Studies, Research and Development in Sardinia, Cagliari, Italy

Session K10
Friday, July 17, PM
Sensors : Radar and Radiometer II

K10:01 *Comparison of monostatic and bistatic radar imaging*
S. Kargin, Turkish Airforce Academy, Yrsilyurt, Istanbul

K10:02 *Near sea surface wind speed detemination by combining altimeter and scattering data*
A. Arakelyan, A. Hambaryan, Inst. of Radiophysics & Electronics of Armenian National Academy of Sci., Ashtarak-2, Armenia

K10:03 *Radiation of a charged current stream, moving near surface of medium with periodically modulated parameters*
N. Y. Grigorieva, K. A. Barsukov, Dpt. of Physics, Electrotechnical U., St.-Petersburg, Russia

K10:04 *Laboratory investigations of temperature-wind features of ruffled water surface microwave radar cross section are due to temperature dependence of water surface short wave spectrum characteristics*
A. Arakelyan, A. Gasparyan, V. Tovmasyan, Inst. of Radiophysics & Electronics of Armenian National Academy of Sci., Ashtarak-2, Armenia ; A. Hambaryan, M. Manoukyan, Remote Observation Centre ECOSERV, Armenia

K10:05 *Detection of helicopters by aircrafts overview radars*
L.J. Melnikov, Dr. Gandurin, I. Samin, Moscow, Russia

K10:06 *X - Band doppler - radar and radiometer system*
A. Hambaryan, A. Arakelyan, Inst. of Radiophysics & Electronics of Armenian National Academy of Sci., Ashtarak-2, Armenia

K10:07 *The secondary processing algorithm for radiometer aircraft radiomapping system*
N. V. Ruzhentsev, Yu. A. Kuzmenko, Radio-Astronomy Inst., National Academy of Sci., Kharkov, Ukraine

K10:08 *On possibility of reduction of mutual influence of cloudy atmosphere to problem of radiomapping*
N. V. Ruzhentsev, A. V. Antonov, Yu. A. Gherasimov, Radio-Astronomy Inst., National Academy of Sci., Kharkov, Ukraine

K10:09 *Bistatic radar cross sections of aircrafts in forward scattering*
M. V. Krutikov, Y. S. Chesnokov, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

K10:10 *Beyond-the-hoerizon target detection by bistatic radar*
A. M. Golikov, G.S.Sharygin, B. M. Egorov, Yu. S. Tchesnokov, L. I. Sharygina, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

Session L09
Friday, July 17, PM
Electromagnetic Compatibility and Interference Problems
Organiser : S. Lindenmeier
Chairs : S. Lindenmeier, R. de Leo

L09:01 *Simulation of Anechoic Chamber Using Transmission-Line Modelling*
J. Paul, C. Christopoulos, D. W. P. Thomas, Numerical Modelling Group, Dpt. of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK

L09:02 *Integrated Solution for Modelling of Multiconductors in TLM*
A. Wlodarczyk, V. Trenkic, R. Scaramuzza, Kimberley Communications Consultants Ltd., Nottingham, UK ; C. Christopoulos, Dpt. of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK

L09:03 *Analysis of ESD Suppressor Effects in Multilayer PCB*
R. De Leo, G. Gerri, A. Giambuzzi, V. Mariani Primiani, Dpt. di Elettronica ed Automatica U. di Ancona, Ancona, Italy

L09:04 *Hybrid MoM Techniques for the Analysis and Optimisation of Handset Antennas Radiating Close to the Human Body*
H.-O. Ruoss, F. M. Landstorfer, R. Eidher, Inst. für Hochfrequenztechnik, U. of Stuttgart, Stuttgart, Germany

L09:05 *Prediction of RF Field-Induced Interference Voltages at Implanted Cardiac Pacemakers*
J. Streckert, V. Hansen, Dpt. of Theoretical Electrical Engineering, U. of Wuppertal, Wuppertal, Germany

L09:06 *Efficient Modelling of Inductive Coupling with the PPS-FD-Solver for EMC-Problems*
S. Lindenmeier, P. Russer, Technische U. München, Lehrstuhl für Hochfrequenztechnik, Munich, Germany

L09:07 *An Hybrid TLM-Integral Equation Method for Efficient Modelling of EMC Problems*
L. Pierantoni, S., Lindenmeier, P. Russer, Technische U. München, Lehrstuhl für Hochfrequenztechnik, Munich, Germany

L09:08 *The TLM-Integral Equation (TLMIE) Method for Solving Radiation Problems in Planar Waveguides*
L. Pierantoni, S. Lindenmeier, P. Russer, Technische U. München, Lehrstuhl für Hochfrequenztechnik, Munich, Germany

Session M09
Friday, July 17, PM
Short Range Microwave Applications
Organisers : Y. Leroy, A. Mamouni
Chairs : A. Mamouni, F. Bardati

M09:01 *Recent investigations of the near-field zones of waveguide type antennas*
R. Ait-Abdelmalek, D. Land, U. of Glasgow, Dpt of Physics and Astronomy, Glasgow, U.K. ; B. Bocquet, K. Ridaoui, IEMN, U. des Sc. et Techn. de Lille, France

M09:02 *An antenna design for near-field non-contacting microwave radiometry*
F. Bardati, DISP, U. di Roma "Tor Vergata", Roma, Italy ; E. Di Giampaolo, Dpt di Ingegneria Elettrica, U. dell'Aquila, L'Aquila, Italy

M09:03 *Thermal conductivity and thermal emission inverse problems*
K.P.Gaikovich, Radiophysical Research Inst., Nizny Novgorod, Russia.

M09:04 *A new algorithm for microwave radiometric temperature profile retrieval*
S. Mizushina, T. Sugiura, K. Maruyama, H. Kitamura, Research Inst. of Electronics, Shizuoka U., Hamamatsu, Japan ; J. W. Hand, Radiological Sci. Unit, Hammersmith Hospital, London, UK.

M09:05 *Characterisation of breast tumors by microwave radiometric imaging*
S. Mouty, B. Bocquet, Y. Leroy, IEMN, U. des Sc. et Techn. de Lille, France.

M09:06 *A two dimensional thermal microsensor based on microwave correlation radiometry*
D. Allal, B. Bocquet, Y. Leroy, IEMN, U. des Sc. et Techn. de Lille,France.

M09:07 *Short range high data rate 60 Ghz, spread spectrum wireless communication system*
S. Levëque, N. Daniele, CEA-LETI (CEA/Technologies Avancées), Grenoble, France.

M09:08 *New telemetric and positioning sensors by microwave interferometry*
A. Benlarbi-Delaï, J. P. Covillers, Y. Leroy, IEMN, U. des Sc. et Techn. de Lille, France

M09:09 *Microwave sensor for the characterization of dielectric materials*
D. Glay, T. Lasri, K. Ridaoui, A. Mamouni, IEMN, U. des Sc et Techn. de Lille, France

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Friday 17	☐	80,00 FRF X .... = ... FRF

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GALA DINNER

Wednesday 15 "Château de la Poterie" ☐ 200,00 FRF X .... = ... FRF
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TOTAL DINNER ..... FRF

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Thursday 16	Mont Saint Michel - (one day tour)	☐	370,00 FRF X .... = ... FRF
Friday 17	Graves and Vineyard - (1/2 day tour)	☐	190,00 FRF X .... = ... FRF
Friday 17	Guided Tour of Nantes - (1/2 day tour)	☐	70,00 FRF X .... = ... FRF
Saturday 18	Châteaux de la Loire - (one day tour)	☐	480,00 FRF X .... = ... FRF

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HOTEL CATEGORY	Choice	Range rates per night, taxes included without breakfast FROM	TO	Deposit + Reservation fees = **Total to pay for the reservation**
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- the registration fees, minus 500 FRF per person for administrative costs
- the hotel deposit, minus 100 FRF per room for administrative costs

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GALA DINNER	.... FRF
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ACCOMMODATION	.... FRF
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